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THE CURRICULUM OF THE ELEMENTARY SCHOOL

PART I

THE MOTIVES AND PRINCIPLES UNDERLYING THE WORK OF THE HORACE MANN ELEMENTARY SCHOOL

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The Horace Mann School differs from the ordinary private institution in that it is more democratic; its special purpose has always been to illustrate the principles of the new education and to show models of good teaching to the students of Teachers College. While not to any considerable extent at the present time a school of practice, it is still a school of observation. Not only college students but teachers and students of education from abroad visit the school in large numbers. This fact operates as a stimulus to all connected with the school. It is felt that everything should be done in the best possible way, not only for the sake of the children but for the benefit of those who come to observe. The object of this article is to indicate some of the motives which animate the teachers and to define the principles which to a greater or less extent control the teaching.

1. The pupils of the school usually come from excellent homes. During the five or six years before they enter the kindergarten or the primary grades, they have had many schools and many teachers. The most important factor in their development has been the social life of the home, and the fact is not forgotten that the first few years of life in a good home constitute the most important part of a child's education. Life in a city, even to

young children, offers a vast number of experiences. The eye and ear are open to a multitude of things which furnish the mind with images and thus provide richly those materials which enter into the after intellectual life. At length the kindergarten and the school, with their more systematic and formal activities, undertake to interpret to the child more fully and clearly what he has already experienced, and to put him in possession of those arts of expression which are essential in the life of an educated person. But the school respects the home and seeks a close alliance with it. It also holds in high appreciation other educative forces which play about the child during his early years and become influential both as nutrition and as exercise to his growing mind. In the Horace Mann Elementary School it is understood that parents may learn from teachers and teachers may learn from parents many things that are helpful in the proper training of the child. The school in its moral tone and culture atmosphere seeks to meet the standard set by the most refined homes, and when, as sometimes happens, homes are found to fall below the standard of the school, every attempt is made to bring them to a consciousness of the higher motives and aims of child development.

2. The comparatively independent position which the school enjoys permits a freedom of action which differentiates it from many large schools. The several parts of any large public school system are necessarily restricted to certain definite prescribed lines of effort. There are, moreover, in such a system traditions and customs which, however good and wholesome in themselves, do not permit any considerable amount of experimentation. It is a cardinal principle in the Horace Mann School that freedom is a fundamental law of growth in the life of every one connected with the institution. Modern civilization in its mighty advance brings changes often startling and rapid. This becomes especially true when science makes daily discoveries of transcendent importance to industry and commerce. As a result of these discoveries new demands are made upon the individual, and the aid of formal education is invoked to enable him to adjust himself to an ever changing environment. The school, therefore, must quickly respond to new social demands and conditions. It must be flexible in its attitude toward all social problems, and must constantly square its policy with the needs of the present time.

In the exercise of this freedom, and in full view of the needs of modern life, the Horace Mann School is more of a laboratory than anything else. In testing new methods it may make mistakes, but it can also correct them, and may thus learn much wisdom. While freedom to the teacher imposes a large responsibility and is not unmixed with danger, it also favors an enthusiasm and a professional zeal which lift the work to a high plane and make the result excellent in quality if not in quantity. It also permits the consideration of every individual child.

3. In these days of the "strenuous life," the strong and healthy child is the only one who can hope to achieve success. Therefore the school must not only provide a regimen which permits the child to grow strong and vigorous, but it must take active steps to help him in this most important part of his education. It must provide a program that is considerate and hygienic. It must arrange a scheme of physical training which exercises his body, giving grace, symmetry, and strength. Through careful examination of each individual child it must ascertain who need special care and treatment, and inform parents concerning any characteristics which require attention on their part. A significant evidence of the present attitude of the school toward physical health is seen in the fact that cases of special defect are now treated by a specialist in medical gymnastics, and already several cases of fundamental weakness have been measurably improved. The new and highly differentiated plant for physical education which is now being provided, with its large gymnasium, swimming pool and auxiliary rooms for exercise, will enable the school to put in operation, more fully than it has yet been able to do, a broad and comprehensive scheme of physical culture, well adapted to children whose out-of-door life is subject to the limitations of the city environment.

4. From the earliest days of the founding of the school the development of the child through self-activity has been a cardinal aim. Every lesson, every bit of work is thought to be valuable according as the pupil puts himself into it. Self-expression is believed to be the best avenue to power and efficiency. So the kindergarten and the elementary school seek to furnish the highest possible number of opportunities for the free play of the child's activities. The teacher marks out the field and acts as leader in various exercises, but a margin of freedom is left to

the child so that he can plan, decide, and execute somewhat in his own way. A high premium, therefore, is placed upon those products of the pupils' work which show individuality. It is true that the work of pupils, because of its lack of sameness and uniformity, does not present to the ordinary mind the appearance of excellence which is seen where work is carefully dictated and directed, and where pupils are required to conform to precise rules and methods. But the school stands for a kind of self-activity that is nourished and sustained at every point by the broad outlook and sympathetic faith of the teacher in the possibilities of the child. Here is the true field of experiment — to see how much the pupil can accomplish in a given area with just enough direction and help to prevent the waste of energy and to avoid desultory effort.

If viewed through the eye of the formal and conventional teacher, the Horace Mann School might seem to have rather loose discipline. But here also it is believed that moral and social strength are gained by experience, and that where rigid discipline is imposed there is little opportunity for the culture of self-control with its judgments and decisions so important to the child's character. It is thought better to let the children make some mistakes in conduct rather than keep them under such close care and scrutiny that they are always toeing the line and marching in step. These mistakes are not to be regarded as indicative of vicious tendencies, but rather as incidental evidences of the child's struggling attempts to conquer himself and become sensitive to the rights and claims of those about him. At all events very little time is spent in the Horace Mann School discussing questions of order, and yet the teachers find that their pupils respond cheerfully and readily to the demands made upon them. This is a practical statement of a profound theory which Froebel and others have expounded in philosophical terms in great refinement of detail. Better than all subtle arguments in favor of self-activity is the truth which every person has learned by experience, that what he has done by himself and through his own unaided efforts has made him most fit to face the world and meet the varied problems of life.

5. In no school has there been a more faithful effort to make the teaching *real*. Instead of constant appeals to memory, so prominent in all formal teaching, much attention is given to the

training of the observation, the forming of images, the accumulation of sense products which are to become the basis of future thinking and imagining. The recitation is, as far as possible, made a real experience. In short, things are placed before words, and the true content of language is sought in real experiences in which all the powers are made to bear their share. The schoolroom becomes a laboratory in which there is more or less apparatus to be handled and used, and in which the creative element is constantly present. Doubtless the school has not yet accomplished all that could be desired but the trend is in the right direction, and we may hope to see substantial progress in this particular.

6. Closely allied with the importance of dealing with real things is the place which motor training claims in the modern school. It is not necessary to show here how the central nervous system is developed through exercise of motor functions. It is enough to know that unused and neglected brain centers become to a certain extent atrophied and out of service. An all around development requires a variety of training for the hand and eye in order to prevent the deterioration which threatens the child bred in the city. In other words, changed social conditions, depriving boys and girls of that varied industrial training which our fathers enjoyed in rural and village life, make it necessary to employ manual training as a fundamental element in early education. It can be defended on every ground. Pupils learn best by doing. Work is dignified and becomes attractive when carried on in the school. The child gains a healthy viewpoint respecting industry, its growth and achievements. Working side by side with his mates, he becomes more democratic and social and is better fitted to live and coöperate with his fellow men. This principle finds a broad application in the Horace Mann School. The study of various types of primitive life, as pursued in the lower grades, gives a rich opportunity for hand work which is interesting and at the same time interprets to the child his present environment. There is an increasing broadening and enriching of constructive work as the child progresses through the grades. More and more, beauty and utility are united, and the student, while gaining skill of hand and eye, is also cultivating his æsthetic sense and acquiring good taste. The domestic field in which girls are permitted to employ their

manual powers is no less fruitful and valuable. It is here that the usual gulf between the home and the school is short-circuited, and education assumes a rich, practical significance.

7. Pupils are led not only to estimate their own work with reference to its propriety and beauty in form and composition, but to study and criticise examples of good work by others. In this way there is awakened a growing sensitiveness to what is harmonious and appropriate, and habits and tastes are established which affect the home life in all its details of dress, furnishing, and harmonious arrangement.

Appreciation and enjoyment of the best literature is one of the leading aims of the school. The power to read becomes anything but a blessing to the individual unless he learns to enter the richest fields and to find true pleasure in so doing. The æsthetic sense must also be quickened in the use of the mother tongue, and those forms of speech which mark the cultivated person must be encouraged.

8. In close alliance with the cultivation of correct taste as relates to art, music, literature, and the use of the vernacular, is the fundamental necessity of awakening in American children sentiments of patriotism, veneration, and heroism. History and biography with their examples of heroes, martyrs, and statesmen provide ample material for this work, and some attention is paid to those great historic and civic anniversaries which commemorate the victories both of peace and war which our country has achieved. It is believed that moral and social excellence is acquired by practice, and the principle of self-activity, to which reference has already been made, is given an important place in matters of conduct and association in the school life. Occasional opportunities are provided for the several classes of the school to mingle freely and enjoy such sports as would be considered proper in a well-ordered home. This intermingling of teachers and pupils in a social way promotes an atmosphere of good will and friendliness which becomes pervasive in the entire school life. In brief, more emphasis is placed upon the forming of good habits than upon formal instruction in ethical ideas.

9. It might appear from the foregoing statements that the real mission of the Horace Mann School comprises several distinct and separate aims. But such is not the case. For the sake of comprehensiveness the several motives and principles have

been separately stated. But in actual practice, they are merged in one common aim. In other words, the ethical motive dominates the school so that in its daily life there is to be discovered no apparent conflict. The standard in every instance is one of quality rather than quantity. The effort to do well is recognized even if the accomplishment is small. Courteous and unselfish conduct is esteemed for what it reveals of the inner feeling and for the promise it gives of the future man or woman. The word which better than any other expresses the method of securing unity is *correlation*. In the first place, the school puts itself into sympathetic relations with the home and other forms of social life. Second, the various studies of the school are regarded not as separate and formal means of discipline but rather as avenues leading out into the world, interpreting to the child his environment and aiding him in adjusting himself to that environment. Third, in a natural and practical way the studies are made to assist one another and the laws of association are recognized.

If the school were to be viewed in a strictly scholastic sense, its function might be briefly stated as the cultivation of "thought and expression." If on the other hand an ethical point of view is to be taken, the school's function might be summarized as the promotion of the "best social life." It will readily be seen that these two great comprehensive aims are not incompatible, and the longer we reflect upon them the easier it becomes to see how they supplement each other and become fused in an all-embracing unity.

SOME PHASES OF EDUCATIONAL PRACTICE IN THE HORACE MANN SCHOOL

By HENRY C. PEARSON, A.B., Principal of Horace Mann Elementary School

The student of the history of education is constantly surprised to see how slowly the principles of educational theorists have found their way into the classroom. Educational theory has been centuries ahead of educational practice. The thoughts of Comenius, for example, who lived some four hundred years ago, have decidedly the flavor of much of the propaganda of the twentieth century educator. This static quality of education

may seem remarkable, and yet there are many reasons why schools have been extremely slow to change their practice. The problems of education are so complex, and the material with which the school has to deal lends itself with so much difficulty to accurate measurement, that it has been hard to determine the real practical value of the conclusions of the progressive thinkers in education. Furthermore there is the difficulty of securing favorable opportunities for testing the merit of educational theory. Education is, therefore, decidedly conservative, and for some reasons it is well that it should be, for this conservatism has saved us from the vagaries of much of our educational philosophy. We are now, however, making serious attempts to measure in a scientific way the mental traits of children, and to organize our educational practice, with the result that in the future we may look for more consistent progress in educational matters.

It is the purpose of these few pages to show how the Horace Mann Elementary School is trying to embody in practice some of the principles that were set forth in the preceding article. It is obviously difficult for any school to square practice with theory, and it is likewise difficult to draw a pen picture of the varied activities of a modern school. I shall, therefore, merely touch upon two or three phases of school life.

1. In planning the work for a school, careful consideration should be given to the social life of the community in which the school is situated. The contents of the children's minds, the breadth and character of their experiences outside of the classroom will be controlling factors in determining the point of departure and the nature of the instruction given. School life should extend, not merely duplicate the home experiences. Correlation means this; it means more than a proper interrelation and coördination of school studies; it implies a harmony of the school and the non-school life, a union of all influences which touch the child, to secure the object of education. Consequently our teachers keep in mind the fact that a large percentage of their pupils are, while at home, influenced by music, good books, pictures, and other works of art; that their imagination is quickened by the drama; that they have constantly before them as object lessons of industry and commerce, the manufactories, stores, railroads, and shipping; that during the long summer vacation many of the children spend two or three months in favored spots in the country. After all, is the life of the well-to-do city child so

barren as it is sometimes pictured? This broad and comprehensive experience has a profound influence on the efficiency of school instruction, and means much for thought power and breadth of vision. The school in turn helps to organize, extend, and interpret the outside experience, as for example the influence of nature study on the summer vacation.

2. The Horace Mann Elementary School aims to make the school life a real experience to the child. True development results only when the pupil reacts upon his environment in a free, spontaneous manner. He must feel that the situation created by his school studies is real and vital to him. Consequently books form only a small part of his instruction, because they deal largely with second-hand knowledge. Obviously the text-book must be largely used in such subjects as history and literature because here we are dealing with an inheritance that comes to us in that form, but even in these studies an effort is made to vitalize the instruction and make the pupil feel by the use of his imagination that he is dealing with an experience that is largely his own. In our use of laboratory methods, and our effort to bring first-hand knowledge to the child, we aim not to lose sight of the fact that books are the tools of learning and that the knowledge of their use is a large part of a liberal education. In nature study, however, we are dealing at first hand with the world around us, and little use is made of the printed page. The aim here is threefold: to develop a love for the realm of Nature, to acquire a body of useful knowledge that will help to interpret her, and to afford some training in scientific method. Consequently the child does not read about plants and animals; he is brought into contact with them as they exist in the world around him. At every point, as far as is possible with the limitations of a city school, the work is made real and not artificial. For this purpose the school maintains a good-sized garden for practical out-door work in the fall and spring, and a greenhouse for the winter months. Frequent excursions are made to the college campus for the study of the trees and squirrels, and to the country for other phases of nature work. In all such excursions care is taken that the observational work shall illuminate and amplify some definite point that has been raised in the classroom, as otherwise the educational results are likely to be meager. In almost every case the forms of animal life are studied from live specimens that are brought into the classroom.

This effort to make instruction real is a controlling motive throughout the Horace Mann School. It is seen in the constructive work of the primary grades, a detailed account of which is given in another article. Its purpose is to secure for the child to some extent that knowledge of and power over his environment that the race obtained in struggling with the problems of food, shelter, and clothing as they developed during the earlier stages of primitive life. The conditions that faced man in the earlier stages of his development are made real to the child, and he endeavors by experiment and invention to solve the problems that arise. This gives a motive for the hand work of the child, stimulates his self-activity, and at the same time gives him some understanding of the elements of civilization. For example, in the second grade the pupil is studying the pastoral stage. In dealing with the sheep the question arises as to what can be done with the wool in the matter of better clothing for man. The children are furnished with a sheepskin, its possibilities and the methods of utilizing it are discussed. The wool is cut off and washed, and various ways of dyeing it are tried. Each child then makes a comb, cards a piece of the wool, makes a primitive loom, and finally weaves a bit of cloth. The uses and advantages of this product are discussed. In this connection the question of decoration is raised, and a real motive is given for practice in elementary design and color harmony. Other problems that arise are worked out in the same general way, with the result that a constant use is made of manual training, art, and nature study. Thus a certain amount of unity is given to all the work of the earlier grades, and a vital quality characterizes the instruction.

3. It is a sign of educational progress that it is trite to argue for a place for physical education in a modern school. It is agreed that considerations of health are fundamental. The training of the body has attained a dignity equal to that of any of the traditional studies of the curriculum, and occupies its part of the daily work. The instructors in charge of this work are highly trained specialists, and have a good knowledge of the child, his physical needs, and the methods of satisfying these needs. Consequently the work of the gymnasium is not haphazard, and is more than a respite from mental work and an opportunity for a little bodily exercise. There is a definite purpose for each day's

work, just as in any other regular school lesson. The new physical education building with its large gymnasium, numerous exercise rooms, lockers, baths, bowling alley, and large swimming pool, will afford the Horace Mann School an unparalleled opportunity of giving the physical needs of the children the attention they deserve. The educative, recreative, and corrective phases of physical education are given special attention. In the group work in the gymnasium the child learns how to obey promptly and explicitly the orders of the leader, how to subordinate his own desires to those of the group, how now to assert and now to control himself in the plays and games, how to develop rhythm and grace from dancing exercises and the music of the piano. Certainly such work is educative to the highest degree. In addition to the regular, prescribed work in the gymnasium, much optional work is provided for outside of school hours. Such work is always under the direction of an instructor, but no formal class work is attempted, since the object is to afford free play and recreation. The individual is encouraged to become proficient in some kind of game or gymnastic event. The limitations of city life make such recreative work very valuable to the child.

The physical examinations made by the school physician have showed in many cases marked tendency to a development of lateral spinal curvature, kyphosis (round shoulders), and lordosis (forward curvature). All such pupils are excused from the regular gymnasium classes and are taken charge of by Miss Lindquist, an expert in the Swedish system of corrective gymnastics engaged for this special, individual work. Of the nine cases from the elementary grades treated thus far, four had double curvature, three single curvature with kyphosis, and two only kyphosis. Spinal curvatures are mainly due to the weakness of the spinal column which, failing to properly support the weight of head and shoulders, bends to the sides, and so produces a curve of the spinal column. Incorrect postures often increase the weakness. The work given in these cases is a system of resistive movements that tend to strengthen the weak muscles of the back, expand the chest, and stretch and straighten the spinal column. The cases have been treated individually, and in every instance, except where the child has been admitted at a very recent date, the improvement has been marked.

One might continue and dwell at length upon the develop-

ment of the child along æsthetic and moral lines. These phases of education are not merely hinted at because we feel that they are of minor importance. They are in fact the warp and woof of school life, and are all-pervasive. The beautiful school building, its artistic decorations, the high ideals portrayed in literature and history, the emphasis placed upon honest work, the personal influence of the teachers, and the spirit that pervades all instruction, are elements that enter into the make-up of that indefinable something called the *tone* of a school. This tone affects the child subconsciously, and is for this reason probably the most influential element in his environment.

A BASIS FOR UNIFICATION IN THE PRIMARY GRADES

By CHARLES R. RICHARDS, Professor of Manual Training, Teachers College

In the lower grades of the elementary school, before the pupil is able to make for himself connections between the various conventional elements of instruction, it would appear essential to present the different branches of knowledge in natural relations one to the other. Without such organization of subject matter, assimilation in any true sense obviously can be but a partial and ineffective affair. Many things may be learned by rote, but the power to relate and apply such memorized knowledge will depend largely upon the unified and vital out-of-school experiences rather than upon the work of the school. It would seem plain that at this stage only, when the different elements of the school experience form natural wholes, built out of problems of real meaning and resting on simple primary motives of conduct, will school instruction follow the lines of natural education.

In order to develop such conditions, it is evident that a course of study must represent both unity and continuity. In order to present truly natural relations capable of being realized and experienced by the pupil it must represent unity rather than cross references. It must represent continuity in order that each element may play its full part in a series of progressive experiences.

The only form of experience possessing unity and continuity to the child is found in the activities of social life. Only in the wholeness of the child's world, in the entirety of his common

experiences, is there full meaning and sufficiency. No single or separate branch of knowledge that the adult has divided off and has labeled geography, or history, or nature study, will serve as a basis for such a scheme, inasmuch as from its very nature it forever remains a part and not a whole.

The phases of social life that will serve for the lower grades evidently must possess simplicity, vividness, and sequence. These elements are represented in a strong degree by the forms assumed in the evolution of primitive society. The study of occupations as they have evolved from the conditions of primitive man presents the facts not only in their simplest and consequently most readily appreciated form, but also in the sequence which shows the interplay of cause and effect and allows each stage to be comprehended in the light of what has gone before. Because the problems so presented can be made so simple and vivid, it is possible to make the child responsible for initiative and reason in gaining his results, and so make of each problem a mental experience of the highest type.

Modern occupations, on the contrary, touch the child in such isolated and accidental phases of complicated conditions that it is difficult, if not impossible, for him to perceive the simple elements involved and to strip off the endless complexities and surface effects. In modern life he sees effects and not causes. He sees results that minister to his wants, but he does not trace them to their source. He knows that food is cooked by turning the cock in a gas stove and lighting the gas, but the complicated apparatus of the gas works is beyond him. He knows the trolley car as a vehicle with a motorman and a conductor, where one pays a five-cent fare and is carried through the streets, but the source of the rapid motion is hidden from him. To attempt to study occupations from this standpoint would be to spend most of the time in eliminating the accessory and reaching the fundamental, and to subject the child to much confusion and bewilderment, whereas primitive occupations have the necessary qualifications of simplicity, vividness and sequence which appeal directly to the child.

In the practical use of such a method, emphasis will naturally be placed upon the economic and aesthetic elements, and the central idea in teaching will be to bring the pupil to realize and experience the situation through his own activity. Activity must

indeed be the characteristic feature of such scheme, but it will be activity in a very different sense from mere imitation. There must be activity of thought and feeling as well as of the motor organism. Mere imitation and reproduction of certain phenomena representative of a given period will amount to very little. Such a method loses the very heart of the opportunity, and if instruction is to follow this line it would probably be better to deal directly with the actual facts and suggestions of the present life. The largest value of the study of primitive life for these lower grades, outside of the simplicity and fundamental quality of its terms, lies in its progressive character and in the consequent opportunity to present the successive situations as a series of problems growing out of needs, conditions and limitations understood by the pupil and related by him to his own social life. The full realization of this opportunity calls for reasoning, invention and experiment on the part of the worker, and regards the final performance but as one element in the mental cycle.

This argument for a unified course of study should not be understood to imply that any plan of this nature can or should hope to reach absolute inclusiveness of all instruction. This certainly is not practicable, nor is it at all necessary. The real point is to obtain a set of experiences so unified that fundamental relations will be established. These experiences should be broad and representative enough to give play to the imaginative, poetic and artistic elements in child life and at the same time serve as starting points for instruction in language, number, nature study, geography, and the simple facts of physical science. That all desirable instruction on these various sides could be effectively compassed within the activities of any one phase of social life is not conceivable. Each aspect of the whole, whether scientific or artistic, will require more or less special attention along the lines of its own needs.

The data of primitive culture may be classified according to several methods, common among which are the following: (1) according to the character of the tools used, *e. g.*, age of stone, age of bronze, age of iron, and, perhaps, age of steel; (2) according to general conditions, *e. g.*, age of savagery, age of barbarism, age of semi-civilization, age of civilization, age of enlightenment; (3) according to the modes of subsistence, *e. g.*,

hunting and fishing stage, pastoral stage, agricultural stage, commercial stage.

It is evident upon examination that neither of the first two classifications constitutes an entirely satisfactory basis for the study of primitive culture in the lower grades of the school. The division based upon the character of tools used is one frequently employed by the archæologist because of the comparatively imperishable nature of the early tool materials and the ready determination of the age of any particular deposit by this means; but it is obvious that tools in the narrow sense stand directly for but one phase of the artistic development, and that of a kind not readily realizable or capable of being experienced by children. The immediate facts of tool development, in other words, are too narrow in their suggestions to open up to children a comprehensive view of the nature and activities of primitive society.

The second classification, on the other hand, is too indefinite and lacks a central key from which to work. It would appear to be fatally defective for this purpose in being based upon general states or conditions of society rather than upon specific activities. If it is only through activity that children can gain a realization of the elements of social life, it would seem that those activities which are most significant in its primitive phases and which most clearly evidence their relation to the conditions of to-day, should constitute the basis of any scheme through which children are introduced to such a study.

In the plan adopted for the Horace Mann School the period of primitive culture represented by the individual and the tribal hunting and fishing stages is dealt with in the first year. In carrying out such a plan an approach might be made by starting with the chief need for subsistence, as developed from the class (possibly food), and then taking away one by one the means possible in more advanced stages of securing this, and so reducing in imagination to the conditions of the primitive hunter. On such a foundation the various kinds of natural food, such as berries, fruit, nuts, roots and mollusks, together with their place of growth — valleys, swamps, hills, seashore — might first be studied. The means of obtaining animal food might then be presented as problems, and the methods of preparing and preserving carried on wherever practicable. The dependence of all life

on the water supply, the fact that the hunter must live near such supply, and that animals make trails to springs, rivers and ponds are points naturally prominent in this connection.

After the question of food, the nature of the first primitive shelters and of clothing in a climate like that of the school situation may be developed. At the same time the change from the condition of the individual hunter to that of tribal organization may be traced, and the reasons for the change studied. The ideas of greater security and increased opportunities in hunting will naturally be brought forward. The fact that all dwelling together in peace involves some kind of social compact, which is in simple form the beginnings of law, should be brought out. The notion of leadership will naturally become prominent, and the idea that physical strength and prowess in the hunt would be essential qualities in the chieftain will readily develop. Even at this stage, the needs for communication and transportation arise and offer problems well suited for study and invention. At the end of such a survey the fact that tribal organization allows a beginning in the division of labor, with its consequent advantages, may readily be made clear.

In the second year a study of the pastoral and agricultural periods is made. The natural advance from the precarious means of subsistence of the hunter to a more certain food supply forms the line of approach to the new stage. The probable method of domestication of animals forms a natural problem at this point, and the number and diversity of resources added, together with greater variety in the food supply, are matters of importance.

An elementary idea of what constitutes wealth may be developed at this point. It can be made clear that just as soon as more is produced than is necessary for mere subsistence, an opportunity is presented for doing other things to improve the conditions of life. The idea may also be developed that when this surplus of production over consumption reaches a considerable point, the support of an unproductive class, such as rulers, priests, healers, and teachers, becomes possible.

The influence of the change in conditions upon the kind of leadership needed may be studied, and the idea developed that care of flocks demanded knowledge of weather signs, location of pasturage, and simple remedies, and that in consequence the

elder or the wise man of the tribe was naturally looked up to as leader. The advantages and points of weakness in the partriarchal form of government may be discussed.

Games, plays and instrumental music were particularly typical of pastoral life and may well be given special attention here in developing the spirit of the period.

From the pastoral it was a natural advance to the agricultural stage. From the possession of food and other wealth, in the form of flocks, to the even greater security against want achieved by tilling the soil, is a step easily comprehended. The fact that this stage demands willingness to work for distant ends and requires much greater patience and foresight may be brought out through the work of planting and gathering in the garden. The advantages of this period — settled habitations, increased comforts and larger amount of time for other activities than the gaining of bodily sustenance — are effects that come naturally out of the previous line of thought.

As with the problem of domestication, the probable beginnings of cultivation will form a point of discussion, and the possibilities brought out of transplanting edible plants to the soil near dwellings. The importance of cereals may well be noted here and the most important kinds studied.

At this point the general geographical ideas of the habitat in each of the different stages may be reviewed, and the relation of one to the other studied; the forest covered hills of the individual hunter, the foothills and grassy plains of the nomadic hunting tribe in combination with pastoral life, and the river valleys for agriculture. The relation of animal and vegetable life to the water supply and the formation of river systems will form an item in this connection.

Other changes brought about by living in permanent homes, such as the greater possibilities of individual property and the fact of ownership resulting from continuous occupancy of land, will naturally be considered. Here, too, the gradual growth of rights and laws through use and custom may well be emphasized.

In the work of this and the first grade, it seems very desirable to present the ideas without making use of a definite historic background. If concrete historic types are used, the mere imitation of historic forms and details is almost sure to be substituted for the reasoning and working out of forms and results by the

children. With the definite historic type constantly in mind, it is practically impossible to effectively develop the idea of causation or to keep this idea vividly before the child. The copying of an Indian or an Egyptian bowl is, to the child, a very different affair from the working out of a bowl to hold meal or water for cooking purposes.

The plan for the second year has its key mainly in the steps by which man obtained food directly from nature. If to this is added the idea of obtaining not only the necessities, but even the luxuries of life, not directly from the soil of the locality, but from remote regions where particular commodities are developed to special advantage, we have the idea of trade and diversity of arts. If with this is connected the idea of discovery (almost always a result of trade), we would appear to have a set of facts and problems well fitted for the needs of the third grade. By such a plan a new factor is introduced in the scheme of evolution, the number of materials and forces studied is increased, the nature of the problems becomes more complex, and the survey of society is extended to wider geographical limits.

The idea will here be developed that, in order to make trade possible, either a surplus of food must be produced or some other valuable commodity made available. If food, it must be preserved from decay, means of storing it must be devised, and its transportation to a distance provided for. On the other hand, dwellers in unproductive districts must develop what special resources they have, dig metals from the soil, cut timber from the hillsides, or create industries which will enable them to obtain by exchange the materials which their own region does not yield.

The kinds of valuable commodities, such as metals and large crops, that are not liable to be found in the same locality, should be brought out, and the possibilities of material passing on from one region to another for long distances studied. The fact that waterways formed the simplest and most natural arteries of ancient trade, and that this led naturally to voyages of discovery, will quickly come to the front.

The fact that the comforts of living are raised by bringing together in one community the resources of many different regions will readily appear, as will also the fact that the specialization of labor always accompanying trade allows the capacity of

one man to be much greater than when he is compelled to do all the various things necessary to support life.

The necessity for measures and weights, systems of counting, currency and means of written communication brought about by trade forms a series of problems adapted, at this stage, for study and experimentation.

In studying the organization of society, at this stage, the tendency of adjacent communities bound together by common kinds of trade to form nations will readily appear, as well as the fact that nations formed by union of communities are necessarily more stable than smaller units. A few of the possible ways of governing such groups of communities may be developed and their merits compared.

The specific theme of the early third grade work, as has been seen, is that of exchange of commodities through trade and transportation, the inventions developed thereby, and the changes produced in the modes of life. Important facts of this stage are the development of the use of metals, establishment of a medium of exchange, methods of measuring and recording, and impetus given to the arts.

The question as to whether the life of some particular people whose history has been recorded should be used in this period is not easily answered. The use of such a background gives definiteness and reality to the story and helps to an acquaintance with historic types. Too much dependence upon the exact historic facts would, however, as in the earlier work, undoubtedly lead away from the sequential treatment of the social forces involved, and introduce mere imitation in place of imaginative invention, reasoning, and experimentation.

Upon such a basis of unified subject matter in the early grades the inevitable differentiation of studies may be built — it is to be hoped with greater chance for appreciation and assimilation on the part of the pupil. The child's understanding of the world follows the universal law of evolution from the homogeneous to the differentiated, and it would seem a fair statement to say that division of studies, with its economic advantages, becomes natural at just the rate that the perception of relations advances in the child's consciousness.

PHYSICAL EXAMINATIONS AS RELATED TO HEALTH CONDITIONS IN THE SCHOOL AND HOME

By THOMAS D. WOOD, M. D., Professor of Physical Education, Teachers College

The attention given to school hygiene at the present time is, on the whole, desultory and spasmodic. This department of school work has no well-defined and established place as yet in educational theory and practice. The best developed phase of this field is the medical inspection of schools for the control and prevention of infectious and contagious diseases. This is important for school and community, and is conducted measurably well in a number of our cities. It is primarily, however, a public health measure and represents only an external phase of school hygiene.

Not until education has the advantage of a larger vision, a keener prescience, and is inspired to a wiser practice by an ethical principle and an altruism which will subordinate the achievements of childhood to the realization of mature power, and, even more, subordinate the entire career of the individual, so far as may be necessary, to the present and future welfare of society and the race, will some of the less conventional, but more fundamental, values in education receive adequate recognition and care; and among these the various interests belonging to the field of school hygiene.

The first care of education should be the preservation and improvement of health. School hygiene in the past has been too largely concerned with the child's environment and the external conditions affecting his health, such as the school building, its sanitary features, and the sources of infectious disease. These factors should not be neglected, but the pupil with his own personal status and problems should be understood, and his adjustment to the environment of school and of his life outside should be more carefully considered. School hygiene should be responsible for all the phases of education directly related to health. These various interests — some already provided for in part, and many others as yet neglected — should be unified and coördinated as much as may be necessary for the effective attainment of health results and economic school administration. Special teachers or supervisors should be trained as health

specialists and made responsible for the different phases of school hygiene.

With reference to the scope of this subject, the first factor is one directly related to the field of child study. This is the biologic examination of the child. This study and investigation of the physical and organic conditions and tendencies of the child should be repeated at intervals varying according to age and individual necessity. Dr. George Gould in discussing the value of such studies has called them "periodic biologic examinations." They should combine certain features of physical, anthropometric, and medical examinations, and something more. No one nor all of these terms with their ordinary meanings can explain the full purpose of such examinations. The examinations should be conducted from the standpoint of education, in a uniform manner, and with a common purpose, so far as any school or locality is concerned. The inspection of pupils from day to day, for the detection of disease, may be carried on independently of the general examination, or, where more convenient, it may be a part of a combined system of health supervision. The technical inspection of the schools for the control of contagious disease, if carried out by a board of health, especially in a large city, will be in charge of physicians appointed by the board. This form of medical inspection, while of great importance, is always liable to perfunctory performance, particularly as the city physicians have so many children to examine. Much may be gained where the school physician is appointed by the board of education and extends his study of the pupils beyond the scope of contagious disease to the conditions and tendencies of so much moment from the viewpoint of modern education.

There is a growing conviction on the part of those who appreciate the conditions of childhood that such examinations are important and worth while. The laws of evolution operate in the human species as elsewhere. The fittest survive, and the unfit gradually disappear in any case. But without the intelligent care of health and life which is possible, there is inestimable human failure and economic loss that might be avoided. There is, perhaps, no more important development of wisdom and prudence than that which conserves the biologic human values, and most of all in childhood. It cannot be taken for granted that the organic condition of the child will be sound. Under our present

conditions of life and education, it is possible in any case, and certain in a considerable number of cases, that normal growth and development will not proceed without individual care and adjustment; that there may be present, without special symptoms of disorder, physical defects of a more or less serious character. The only rational and adequate basis for the direction of the child at home or in school is the thorough knowledge of his physical status, in order that existing conditions and tendencies may be recognized and important changes noted, and that it may be known that growth and development are proceeding satisfactorily, or, in case of abnormalities of any kind, that these may be corrected as soon as possible.

Dr. Hertel, in his well-known investigation of the health of pupils in the better-class schools of Copenhagen before 1885, found that of the boys 31.1 per cent and of the girls 39.4 per cent were sickly. Examinations of 40,000 school children by school physicians in the duchy of Saxe-Meiningen, Germany, in 1900, showed that 23 per cent were myopic, 10 per cent or more had spinal curvature, and 60 per cent had bad teeth which needed attention.

Examinations of nearly 900 pupils in an American school during the past year showed that 34 per cent had myopia; 12.9 per cent had functional heart disorders; 5.6 per cent had spinal curvature with some vertebral rotation; 31.2 per cent more had asymmetry of spine, hips, or shoulders; 14.6 per cent had adenoids or chronically enlarged tonsils. In over 10 per cent of the cases letters were sent to parents recommending that medical attention be given to some physical condition.

These examinations should include the information about the child's health, habits, and tendencies furnished to the school by the home, the observation of the keen-visioned teacher, trained to note important signs, and the results of the study of the special examiner. More specifically, the examination should include some measurements, not too many, but those which are worth while. There should be tests of sight, of hearing, and of the nervous and muscular systems. Further, there should be examinations of general form and symmetry of the body; of posture and mechanical adjustment; of spine and feet; of heart and lungs; of teeth; of throat and nasal passages, where, in younger children more particularly, enlarged tonsils and adenoid growths often

injure health and interfere, perhaps seriously, with mental and bodily development. Beyond this, there should be judgment of nutrition and general vitality, and, finally, an estimation of temperament and other general characteristics difficult to define, but important to take into account. The observations and judgment of the child should be made by a wise and carefully trained examiner and should be thorough and complete.

The information gained should be furnished to the home, and through the home the attention of the family physician or medical specialist should be directed to conditions about which there may be question. There are, of course, technical medical examinations and tests which it is neither necessary nor desirable for the school examiner to undertake. This coöperation between school and home is of mutual advantage and of great importance in this as in all other matters which concern the child's welfare. The teacher, again, should have all of this special information which will help to a more favorable adjustment of school work. This biologic knowledge is essential to any true or just estimation of the pupil's intellectual power or capacity, and to an understanding of personality and individual characteristics. This examination, let it be repeated, must have a broad educational motive. It is the fundamental feature of school hygiene and should be the basis of all education.

In the second place, school hygiene should test and judge the entire environment of the school, its adaptability to the pupil, and effect upon health. To be included also in this department of the subject are the hygiene of instruction; methods of study, of recitation, of school examinations; home study; length and arrangement of the school program; recesses; school lunches; alternation of activities in the schedule. All these items in this passive and active school environment of the pupil should be subjected to careful study and judged partly and primarily with reference to health.

Health is not everything. It is not to be considered in itself as an exclusive end of living. It should not be the main or final goal of education. It is, however, an absolutely essential means to forms of human achievement of most worth. It is even more essential to the welfare of the future than of the present, if the race is to progress and not deteriorate. The health of the adult may under certain conditions be justifiably sacrificed to other

ends, but the claim is made with great confidence that the health of the growing child may be sacrificed to nothing; that nothing may be allowed in education which injures or interferes with the pupil's health in any way whatever; nay, more — that, with our present and larger social view of education, its first care and effort, as has been stated earlier, should be the preservation and improvement of health and organic power and efficiency, as the fundamental condition of individual and social well-being.

In the third place, it is the function of school hygiene, through the instruction which is called physical training, to provide for those larger motor activities which should supplement the exercises and movements otherwise required by school work. These larger fundamental movements are necessary for the counteraction of certain undesirable tendencies in posture and action of school life, and for the health and complete organic development of the pupil. The beneficial effect of this training upon the nervous system, upon mental and even moral qualities, may be as important and definite as that upon the body in general. In this scheme of physical education should be grouped and coordinated the more formal gymnastics and games, the simple corrective and relaxing exercises to be used between classes, and the free play of recess periods. It is desirable to correlate the gymnastics, as far as may be practicable, with the interests of regular school work, and to make them in any case more rational, practical, and serviceable in many ways than they have been in the past. It is not in place here to discuss the details of the technical work of physical training, but simply to state that this belongs to the larger field of school hygiene. The biologic examinations which have been described will give most necessary and valuable information as a basis for the adaptation of exercise and the direction of the general physical education of the pupil.

Finally, school hygiene should provide for the instruction of the pupil in matters relating to health and hygiene. No knowledge is of more worth than that which bears upon the immediate problems of life. Human living must always rest upon a biologic basis. The human being knows less instinctively how to live as civilization advances. The study of the science and art of health must play an increasingly important part in the education of the future. In a recent popular article on health, Dr. T. Mitchell Prudden, one of our best authorities on general

hygiene, emphasizes the importance of this factor in education in the following words:

"One of the most urgent necessities of the coming years is education in personal hygiene. This knowledge of the ways of healthful living must be systematically and intelligently imparted in the schools, and it should not be perverted, as in many instances it is to-day, to serve the worthy but narrow aims of an anti-alcohol or anti-tobacco crusade." And he adds in another place: "Honest hygiene must be taught in schools."

All of the health instruction should be under the supervision of a special teacher, that there may be rational progression in matter and method through the grades, the working out and suggestion of practicable correlations of hygiene with other topics, and the effective teaching of the subject where it is given as a distinct course.

In conclusion: If the work of school hygiene is to be successfully accomplished, there must be:

1. An educational philosophy which recognizes health, not as an end in education or life, but as an essential means to human achievement, immediate and remote; a philosophy, again, which provides practically for the preservation and improvement of health and the development of those fundamental organic qualities which are so essential to the success of the individual, and even more to the integrity of the race and the permanent welfare of society; and, finally, a philosophy which makes place and means for the instruction of the young with reference to life on its biologic side so that they may intelligently and successfully meet the problems of living as they present themselves.

2. The different phases of this health side of education may best be accomplished by uniting the fields of school hygiene and physical education under one department of school effort for the purpose of supervision and administration. The position of teacher or director of physical training is already recognized and provided for in many schools. The efforts of this special teacher are, or should be, devoted primarily to the interests of health. This field may be advantageously enlarged and called "physical education and school hygiene." Professional schools and courses of instruction are needed for the training of these health specialists. The special teacher or supervisor must be trained very thoroughly and broadly to meet effectively the de-

mands of this larger, more dignified, and richer field of education. These specialists in hygiene should be prepared to look after the various interests of this field, to supervise that part of the work which falls naturally to the grade teacher or to others, and to perform well, from every point of view, the work which belongs logically to the health specialist.

3. The special teacher of hygiene, however, can alone do very little of this large and varied work. Every teacher, supervisor, principal, and superintendent in the school should have a keen and intelligent appreciation of health values and interests, and of the measures necessary to preserve and foster them. If our general teachers and educators are to have this understanding of hygiene, which is essential to their necessary and effective cooperation in the united effort which is needed, there must be, beyond the general instruction in hygiene in school and college, thorough courses in physical education and school hygiene in all the normal and training schools and colleges for teachers. Such courses are being advocated and introduced into some of the normal schools of Germany and other European countries, and are finding place already in a few institutions in the United States.

EARLY HISTORY OF THE HORACE MANN SCHOOL

By JOHN F. WOODHULL, Ph. D., Professor of Physics and Chemistry, Teachers College

The Horace Mann School was founded as a necessary adjunct of Teachers College, and both opened their doors (which were one and the same door, at 9 University Place) for the first reception of students on September 12, 1887. They were housed in the old building of the Union Theological Seminary and here they remained for seven years until, in 1894, they removed to Morningside Heights. In 1887, 104 students entered the College and 64 entered the School. Dr. Nicholas Murray Butler, President of Teachers College, in his annual report for that year states the relation of the School to the College as follows: "It is necessary in order that the living child may be studied as he is by the future teacher, and in order that the pedagogic lessons learned may be practically applied and tested." The principles upon which these two institutions were founded were made familiar to us in those days by frequent repetition. They may be

culled from the printed reports, and were briefly as follows: "Education is the training of the child for life"; "Manual training is mental training"; "It is founded on the nature of the child's mind and must be an integral part of general education"; "The complete development of all the faculties"; "Putting the whole child to school"; "The aim of the instruction is to unite with the best methods of teaching the usual school studies, the best educational work in the industrial and mechanic arts, thereby securing for the pupils such a training as will best and most harmoniously develop their mental powers and best fit them for citizenship and the active duties of life." From the first the pupils of this School have enjoyed instruction in manual training, fine arts, music, science, cooking, sewing, and physical education, as well as the usual subjects of study.

A rich curriculum executed by skillful teachers accounts for the fact that the enrollment has increased in sixteen years from 64 to 1000, at the rate of about 60 pupils a year, in spite of the fact that the tuition has increased during the same period from $4 to $250, at the rate of about $16 a year. This phenomenal growth is chiefly due to the rare ability of the Horace Mann School teachers to understand their pupils as well as their subjects of instruction.

The devotion of these teachers to their profession is shown by their long terms of service. Five who taught in the School at 9 University Place are still in the School. Miss Schüssler entered as a student in the first class of Teachers College, graduated in 1889, and has been a teacher in our primary schools from 1889 to the present year. She has recentiy been appointed Vice Principal of the Speyer School. Miss Robbins began her work in the fourth primary grade in 1891. Miss Gillmore graduated from Teachers College and became a teacher in the grammar school in 1892 and a teacher of history in the high school in 1901. Mr. Biklé began teaching mathematics in the high school in 1893. Miss Van Arsdale, after graduating from Teachers College, began teaching physical science in the high school in 1893.

The appreciation of the teachers and the curriculum is attested by the fact that very many children beginning school in the Horace Mann kindergarten continued through the high school, following the school from University Place to 120th street, a distance of six miles.

During the first year of its existence the Horace Mann School opened its doors each day after 3.30 P. M. to the public school children. Over 2400 applied for admission. Selections were made from these and 116 were enrolled in sewing, 167 in cooking, 142 in drawing and clay modelling and 83 in woodworking. The eagerness with which these pupils added these subjects to their long days of study upon the usual school subjects was pathetic. The results obtained were excellent.

In 1891 the school, which had previously been called the Model School, changed its name to that of the great educator, Horace Mann.

In 1893 Teachers College and Columbia University formed an alliance whereby courses in each institution were open to students of the other. This brought many students of Columbia into the school as observers and practice teachers. In this year also the first Pulitzer Scholarship Boys were received as members of the Horace Mann School, in preparation for Columbia and other colleges. In the same year the school made a very large exhibit at the World's Fair in Chicago, which elicited much favorable comment.

In those early days the Horace Mann School had already begun to take active interest in athletics. It had also its senior plays and societies.

The School and College moved to Morningside Heights in the fall of 1894, where they occupied the same building until 1901, when the school entered its own beautiful and commodious building.

PART II

THE CURRICULUM OF THE HORACE MANN ELEMENTARY SCHOOL

By SAMUEL T. DUTTON, A. M., Superintendent of Horace Mann Schools, and HENRY C. PEARSON, A. B., Principal of Horace Mann Elementary School.

This curriculum represents, as far as a brief printed statement can, the work that is being done in the elementary school. It has been prepared with the coöperation of several of the teachers and of Professors Baker, Smith, Dodge, Castle, Bigelow, Richards, Churchill, and Woodhull. It should be remembered

that the unity pervading the school work results not only from the interrelation and adjustment of the subject matter of the various studies, but from the intelligence and spirit with which the curriculum is carried out by the teachers in the classrooms.

The general principles that underlie the work of the various studies are given below, and these are followed by an outline of the curriculum by grades.

English

The course in English has for its main purposes the cultivation of the powers of expression, both oral and written, the development of the power to read, and the cultivation of good taste in reading. These objects are contemplated not so much as completed attainments, but as sound beginnings of further growth.

The literature is selected primarily for its interest and its comprehensibility to the grade in which it is read. So far as it may be done without prejudice to the objects of the course, it is selected in relation also to other school subjects. It has not been found possible to make the course consist entirely of the reading of books of high literary excellence; but nothing that is without some merit in form and substance has been admitted. Two other principles have been recognized in its selection: first, that the various elements of knowledge and feeling should be represented, as in the selection of myths, romantic and lyric poetry, natural history, travels, history, etc.; second, that in the various stages of their development, children have well-recognized preferences and interests of which it is better to take advantage, even though the form in which the material is presented be not the best. Through all the grades much attention is given to reading aloud in an easy and natural way.

In the cultivation of expression, the oral work precedes the written: what is to be written is first discussed. Subjects for composition must be simple and familiar. Especial attention is given to the securing of easy, natural and clear writing. There is much drill on the formal side — spelling, punctuation, etc. The customary drill in such exercises as dictation has been found to be of the greatest value. And in the early years phonetics, as an instrument which the child must use in both reading and writing, have a prominent place. One general principle in this phase of

the work is that things must be learned and relearned until they become a permanent mental possession.

In what may be termed the linguistic side of the work not much can be done in the early years. Words, diacritical markings, inflections, homonyms, etc., are learned gradually and incidentally. Grammar as a formal study is begun in the sixth year and finished in the high school. In this branch of the work only the more fundamental elements are considered, and the modern grammarians are followed in their rejection of useless or untrue rules of concord and syntax.

Mathematics

The course of study in mathematics follows in a general way the course in the New York City public schools until the seventh year. Arithmetic is taken up in the first year, but instead of being dropped in the seventh grade, it is continued until the first quarter of the eighth, when it gives place to elementary algebra. It is not thought wise to drop the subject for the whole of the seventh year, substituting algebra in its stead, although the chief value of algebra to the child — the use of the linear equation — is recognized as early as the sixth grade.

An effort is made, in all of the applied problems, to relate the subject of arithmetic to the present needs and interests of the pupil until the middle of the seventh grade. The work of the year preceding the taking up of algebra is then devoted chiefly to his future business needs. Thus throughout the course there is a rich and interesting content given to all the applications of the subject. With this, however, is carried on that continued drill in abstract number without which proficiency in arithmetic is impossible.

The manual training is thought to furnish all of the work in geometry that is necessary at present, in addition to the mensuration studied in arithmetic. No course in geometry as such is, therefore, offered.

Geography

The course of study in geography begins in the third grade with an emphasis of home geography based upon the geographical phases of nature study of the first and second grades. In the

study of home geography attention is especially given to the present geographical conditions that can be observed by the pupils. Certain topics of value in most courses in home geography are here omitted, because they have been included in the kindergarten course and in the study of primitive life in the earlier grades. Owing to the richness of the home locality historically, comparison is made constantly between the present and the past conditions of life in New York City so that the present is viewed in the light of the past and the past is interpreted in a measure through the present. The treatment of local life and conditions leads naturally to a study of the relations of the individual pupils to distant localities and finally to the world as a whole. This relation is developed by tracing certain articles of common, and, where possible, daily usage back to the regions of production, so that a constantly enlarging view of the world is gained. The problems of distance and direction are presented through the globe rather than the map so that the pupils easily gain a familiarity with the globular form of the world. Those products are selected which will bring into consideration various contrasted climatic areas and thus the way is paved for a summary of the world conditions by means of the heat belts. Enough of detail is presented in reference to the life conditions in each of the contributing areas discussed to bring out the contrasts with the home conditions.

The work of the fourth grade opens with a review and enlargement of the world conditions of the third grade in preparation of a study of our own continent and especially of the United States. North America is first studied briefly as to its larger features so as to bring out the essential facts of climate, surface, and drainage necessary as a basis for the regional geography. In the regional work the causal notion is constantly emphasized, the point of departure being the life conditions. The United States is studied primarily by political divisions. An analysis of the life conditions in each division and an emphasis of the commercial and industrial relations lead to a growing appreciation of the importance of earth causes in a study of geography. Each region is studied as to its industrial conditions and as to the causes for those conditions. No greater emphasis than is necessary for clearness is, however, given to the technique of industries. The political and industrial phases of geography are believed to be

not only the most interesting and personal, but the most important phases to be emphasized at this time.

In the fifth grade those portions of Europe and Asia which are the most closely related to the United States economically and politically are studied in a similar manner, and comparisons are constantly made between the relations of life to its controlling conditions found here and in North America.

The increasing attention to physical conditions, as the work of these two grades progresses, leads naturally to the introductory work of the sixth grade, which is a somewhat intensive study of mathematical and physical geography occupying approximately one-third of the year. The principles worked out in this time are then applied during the rest of the sixth year to Africa, Australia, and South America. These continents are studied from the physical standpoint and the study of life consequences follows that of earth causes. A topical order, from causes to effects, is followed closely, during which the political features receive careful attention.

In the seventh grade a similar causal study is made of North America and especially of the United States. The several physical divisions of the United States are studied in turn, beginning with the Atlantic Coast sections. Thus the relations of the history to the geography can be constantly brought out. The economic conditions are studied as a result of the physical and social conditions and are brought to a climax in a brief review of the geography of Europe from an economic standpoint.

It will be noted that the only regions studied twice during the course are the United States and portions of Europe, the regions of most importance to the pupils. The method of presentation followed in the earlier grades is the reverse of that followed in the later grades, and thus repetition in concentric circles is avoided. The method followed furthermore allows the work to be closely related to the interests of the children in the different grades, and the thought work demanded increases in strength with the increasing power of the pupils. This course has been planned and executed with three fundamental thoughts in mind in reference to the purpose of geography study.

1. To give a knowledge of those principles of geography which will be of permanent use to the pupils and which give an increasing grasp of the subject as the years go on.

2. To give an understanding of the essential facts of geography of daily use, without a knowledge of which no one is educated.

3. To give training in right thinking.

History

The course in history is planned for the conditions which prevail in the homes and lives of the pupils who attend the Horace Mann School. The average child comes from a home where the comforts of life abound, where the luxuries of life customary for well-to-do people are found, and where newspapers, books, works of art, and good ideals are a part and parcel of the family tradition. Every child has traveled beyond the limits of the city. Many have been within the bounds of a score of States. One or two children in each grade have traveled in Europe. Country life, the basis for an understanding of our own and most European history, is a thing known in some of its phases to all. The course therefore implies a fund of experience and an acquaintance with facts not found everywhere, and differs materially from courses planned for children from homes and lives of a totally different character.

Those facts about human life and its development which are usually considered historical by the best authorities form the subject of study. Only those which are fundamental from an historical point of view are selected, and these are treated in sufficient detail to insure a clear understanding of them.

The sources from which the children of the Horace Mann School derive their knowledge of historic peoples are quite as varied as the peoples themselves. The chief source of information is the text-book, which is admitted to be inaccurate in part, incomplete, and often uninteresting in itself, yet the best source which we have for the purpose to-day. It is only one source, however. For the rest, reference books are put in their hands; explanations, corrections and additions are made by the teachers; information is gained from unresisting parents or friends. The children discuss their versions and interpretations of facts in class and among themselves, and are guided to select and retain only those facts that are true and essential and full of historic meaning. For the appreciation and interpretation of historic facts, they have a basis in the multiform experiences of the home, street, playground and classroom, and in the work of the first four grades.

The children are expected and encouraged to think about things. They cannot think out a fact because that is impossible. They memorize facts because facts form the foundation of thinking. They are directed to discover relations between facts and to interpret them — in a word, to think about them. Doubtless they often speculate and guess, but this is discouraged and corrected when discovered. If a child, in his growth, were like a building, each additional increment always remaining the same throughout life, it would be possible to have him memorize certain historical facts one year, others the next, and so on, till the whole body of historical knowledge should have been mastered. But this is impossible, first, because few historical authorities themselves agree upon the statement of historical facts, and second, because the mental processes of different children vary. Each selects for himself only a part and is a law unto himself as to what that part shall be.

History is interesting in and of itself. There is no need of an appeal to fictitious or external interests. Historical facts are things that men have done; they would not have been done had they not been interesting. Children are interested in men. Real men, motive as a force, action as a result, change and development — these are real. The chief reason why texts are so uninteresting is because of the lack of life and action in them. Human thought and action are the foundations of real and abiding interest in children. Whatever goes to make these clear and definite — be it picture, excursion, text-book, explanation of teacher or parent, outline, book of references, play in the school-yard, or what not — this it is that adds to the interest; and whatever confuses or makes less clear and definite but makes distraction. The bounds of a child's interest are set in the range of his experiences, the maturity and originality of the indivdual mind, and the character of the ideas and ideals of home and playmates. It is not supposed that all historic subjects have interest for grammar-school children, rather that only those subjects and phases of subjects which come within the range of experiences of the children of the Horace Mann School can be handled and understood by them.

The pupils are given definite instruction in the best and quickest methods of learning a lesson. They are taught how to use well and wisely reference books and the most accessible historical material. Clear and exact language is insisted upon as an

essential to any accurate understanding of an historical fact. The ability to select and organize facts — the test of an educated mind — is secured through a long and slow process of training adapted to the ability of the pupils in each grade.

The chief value of the course lies in these things: first, it gives such a knowledge of the ordinary historical facts as any educated person is expected to know; second, it gives training in just those processes which the pupil will meet with in his every-day life as an individual and a citizen — the ability to select facts material to the thing in hand, to arrive at and estimate motives, to form correct judgments, to secure facts from a variety of sources; third, although history is considered unethical in itself, it affords the widest opportunities for raising and discussing ethical questions and principles, and preëminently lends itself to ethical training, which is a function of all classes and of the entire school.

Nature Study

Nature study aims are: First, to give general acquaintance with and interest in common objects and processes in nature. This aim finds its justification chiefly along generally recognized moral and æsthetic lines. Second, to give the first training in accurate observing — the very foundation of the scientific method — in order to lead the pupils to gain some information through their own investigations, rather than to depend entirely upon books and teachers. This requires that the nature study teaching be based on actual studies of the natural objects; in other words, it should deal with those things which pupils under careful direction may see for themselves. Such training is a valuable part of elementary education. Third, to give pupils useful knowledge about natural objects and processes as they affect human life and interests. This aim, like the second, looks towards results which are primarily useful for their own sake, but which secondarily and incidentally may come into relation with advanced study of natural sciences.

With the differences in materials and the advancement of pupils the emphasis upon these three aims may vary. The course is therefore planned so that the first aim will be most prominent in the first grade, and yet the others must not be overlooked. In the next two years the second and third aims should be about equally

prominent, and the first aim somewhat incidental. Finally, in the fourth and fifth grades the pupils are led into some comparative work favorable for special emphasis upon the second aim, but the third and first aims should not be neglected.

The natural interest of young children in living things suggests the emphasis on the biological aspect of nature study which is given in the outlines for the first five grades. In fact, we must recognize this as the very center of nature study, for our human interests in nature are fundamentally biological. As living things ourselves, we are most interested in knowing how nature in all its aspects affects life. This is the natural basis for unity in a course of nature study in which living and lifeless things and processes are involved.

Hand Work

Because the mental processes of primitive man and the child of to-day are in many respects similar, the study of some of the problems involved in the early development of man gives the child an opportunity to experiment, reason, invent, and sympathize, as the race has done before him. Both primitive man and the child of to-day respond directly to stimuli; both are absorbed in the thought of the moment. With each the attention is easily diverted unless the personal element is a factor, and both develop along the lines of physical coördination. The study of the activities of primitive peoples, which is the basis of the work of the early grades, furnishes simple and easily understood social conditions, and gives opportunity for great motor activity which is governed largely by environment and necessity. Cause and effect are closely related and react upon the child in a manner that unifies his experiences. Through constant comparison with his present social conditions, he learns to appreciate the work of those who have lived before him, and also to respect the dignity of labor.

In the upper grades, the hand work is related to the thought underlying the pupil's other school activities, and to his natural interests. It aims to help him understand his present material environment. A motive is thus given to all constructive work. As the pupil progresses increasing attention is given to good workmanship, as well as to self-expression.

Art

Art is broad and complex, and the aims in art study are correspondingly manifold. Two or three of the main purposes of the art work of the Horace Mann School may be briefly stated.

Perhaps the first in order of importance is the enrichment of life through the appreciation of beauty of form and color, whether in nature or art. Another is the cultivation of definite mental images of form upon which many lines of thought are based — mathematical and mechanical conceptions, for example, as well as "fine arts." In the strong hand work movement of this decade we must not forget that drawing is the natural language for the expression of the world of form. The third main purpose, which is partially involved in the first two, is the development of the power of the child to plan and do beautifully whatever he does at all. The pupil's attitude toward art must not be one of merely passive enjoyment. The art spirit should permeate the child's life and influence each product of his hands.

The method as a whole starts with the child and aims to employ modeling, drawing, painting, and the various forms of hand work so that they may fulfil in the highest degree the natural conditions of self-active work. To do this they must appeal to vital interests and give play to those instinctive tendencies of the child which indicate the most natural lines of growth. The general divisions of the work may be seen by the following synopsis:

PHASES OF SUBJECT

I. Representation with { pencil / brush in { black & white / grays / color } } for { form / size { d'rk & l'gt / color } / values / distinguishing features }

II. Representation modified in composition (including all stages of transition between pure representation and decorative composition)

Principles governing proportion in { forms } for { shapes / size / values } / areas / line { length / width / value }

1. Variation
2. Consistency
3. Movement { rhythm / opposition / radiation }
4. Balance
5. Emphasis
6. Unity { conception / expression }

(Application of these principles to enclosing form)

III. Design. 1. Problems in application of principles stated under "Modified Representation." In { the round / borders / surface patterns / determinate decoration }

2. Problems in application of same principles in pure design (as drill exercises)

(Most of these exercises are done in connection with concrete problems in art or manual training)

IV. Picture Study

Study of Masterpieces	Study of the Artist
1. For their inspiration	1. Geographical conditions
2. As an expression of the spirit of the epoch which produced them	2. Historical conditions
	3. The individual
3. For structural features of composition	
4. For classification as to school (omitted below 8th grade)	
5. For personal style	

Physical Training

The health and physical development of the child are prominent factors in our present system of education. The importance of directing and wisely guiding the natural activities from childhood to maturity is widely recognized by leading educators. Play is natural to every normal child, but play alone does not fulfil all the requirements for the best growth and development of the child. The play instinct must be guided along those lines of physical training that are educative, hygienic, corrective and recreative, in order that it may become a potent factor in the child's mental, moral and physical development. The work has been graded according to the pupil's age, condition, and present environment, and with a view to adapting it to his physical and mental needs.

The aim of the work is: first, to secure, maintain, and establish the health of the child; second, to train his powers of attention, perception, and motor expression; third, to secure prompt and accurate response to motor stimuli; fourth, to stimulate and direct the play instinct, and to promote in all phases of the work those elements of sociology that tend toward the broader and finer mental, moral, and physical development.

Music

All the grades receive two lessons (thirty minute periods) each week. One of these is devoted to class singing, the interpretation of songs, vocal training, accessory breathing and physical exercises. The other lesson is given in the class room and is devoted to the special theory work of the grade, to the analyzing

and learning of words and to the general drill and practice necessary for assimilating the work.

Besides these class lessons, the regular morning exercises give opportunity for chorus drill for the whole school. On these occasions the best hymns and chants and responses, such as are useful for general exercises, are studied and interpreted. During the year also the best known patriotic, college and folk-songs, such as should be in the repertoire of every school child, are learned. Besides these, such selections from the classics of old and modern music as are suitable and available are practiced and sung. Special programs, relative to school subjects, are also given from time to time by the grades. The festival periods, harvest, Christmas, the patriotic birthdays, May-day, offer opportunities for programs in which the whole school takes part. Piano interpretations of Wagner and other noted composers, and an occasional recital from the outside, form part of the plan of the music work of the year.

OUTLINE OF STUDIES

GRADE I

ENGLISH

Literature.

1. Sentences, charts, and leaflets relating to primitive life. (Based on Waterloo's Story of Ab).
2. Selections from the following readers:

Stepping Stones to Literature (Arnold & Gilbert).
Child Life (Blaisdell).
Fairy Tales and Fables (Thompson).
Around the World (Carroll).
Stories from the Poets (Atwater).

Supplementary

Mew-Mew and Bow-Wow (Craik).
Second Book of Graded Classics (Norvell).
Second Reader (Cyr).

Phonetics.

1. Single consonants.
2. Simple combinations of consonants: ch, sh, th, wh, ck, cl, pl, sp, ing, st, nt, lt, mp, ft.
3. Long and Short Vowels.

Daily Instruction in Penmanship.

Memorizing Good Literature.

Mathematics

Special work: · Counting, the addition tables through 4's

Counting. — By 1's to 20, by 10's to 100, by 2's from 1 and 2 to 11, as needed for the tables; by 2's to 20, by 3's to 18, by 4's to 20, beginning with 1, 2, 3, or 4, as used in the addition tables.

Integers. — Written to 100.

Addition Tables. — The combination of numbers of one order with 1, 2, 3, and 4. Sums found by counting objects; the value of each number and of each combination, as 3 and 2 are 5, should be recognized at sight without counting; the combinations developed and memorized, and applied in increasing and decreasing a number of two orders, no carrying, no borrowing; as $5+4=9$; $25+4=29$; $85+4=89$; $9-4=5$; $29-4=25$.

Measurements and Comparisons. — Pint, quart; inch, foot, yard; pound; cent, five-cent piece, dime. Contents measured in pints and quarts. Length measured in inches and feet; no compound numbers. Buying and selling of objects, and making change with toy cents, nickels, dimes. Quart measured by pint; foot measured by inch; dime and five-cent piece measured by cent. Two groups of objects of the same kind compared to find how many more there are in one than in the other. Lengths of lines of integral number of feet, or of inches, compared. One line is how much longer than another? Exercises within 20.

Problems. — *Oral*: Should be solved by arranging and counting objects or their pictures, and results obtained by addition or subtraction when the numbers fall within the combinations. No formal analysis, only one operation in a single problem. In every grade the problems should appeal to the child's life and interests, and be correlated with his other work whenever this can be done to genuine advantage. *Written:* Addition or subtraction.

Signs. $+ - =$. Not much use is made of such symbols, the work being chiefly in column form.

Nature Study

The nature studies of this grade should be understood as aiming to give the pupils general acquaintance, sympathetic interest, and æsthetic appreciation of some of the most common

objects in the external nature with which the pupils may come in contact.

Cultivation of Plants. — Beginning in early autumn, in greenhouse and window-boxes from September to May, and in garden in summer, cultivate plants valued for their beauty — nasturtium, morning-glory, poppy, portulaca, mignonette and other annuals raised from seed. No formal study, but the observations should be continuous, so that pupils will gain a general acquaintance with these plants and their life history. A bed of some perennials should be started from seed and followed in later grades.

Animals as Pets. — At convenient times throughout the year make general studies (general form, kinds, habits, adaptations, how they care for themselves, how we should care for them, why we are interested in them) of some pet mammals (dogs, cats, squirrels, rabbits), and birds (canary or other available pet birds). Also direct attention to aquaria and vivaria with animals such as chameleons, goldfish, etc., which are commonly kept because we appreciate the beauty of their forms, color, and movements.

Insect Studies. — The life of butterflies and moths. Starting with living caterpillars of several species in autumn, follow the changes into pupa and finally into the perfect insect in the spring.

Trees. — Develop general acquaintance with some common trees near the school. Study branches of oak, beech, chestnut, hickory with ripened fruits. Plant acorns, peach pits, and apple seeds in garden. Autumnal coloration of leaves. Note progress in shedding of leaves in autumn and the reappearance in spring. Compare with evergreens as to the midwinter condition. Press, mount, draw, and make blue prints of leaves in autumn and spring.

Wild Flowers. — Very familiar kinds, such as goldenrod, ox-eye daisy, and aster in autumn; and spring beauty, blue violet, buttercup, and dandelion in spring. No formal study planned; aim at acquaintance and interest. Transplant dandelion, buttercup, and violet to pots, and follow from development of buds to that of fruits.

Wild Birds. — In autumn, winter and spring take occasion to direct attention to the interesting habits of the English sparrow,

which may be studied from the windows of the schoolroom. Robins may be observed on the Columbia Campus.

Elementary Hygiene. — Care of mouth and external surface of the human body and the use of clothing should be correlated with the studies of pets — our care of them and how they care for themselves.

Physical and Geographical Nature Study. — Use of thermometer. Use of the magnetic needle in compass. The windvane. Directions of winds, movements of clouds, and relation of clouds to rain. General conditions of temperature attending rain, snow, and sleet.

Hand Work

The activities of the fishing and hunting stage are worked out with special reference to food, shelter, clothing, and government. The primitive methods of securing these, together with the effect of environment, are considered. Types, about which to unify the work and give it the personal element, are the cave man, as developed in Stanley Waterloo's Story of Ab, the Eskimo, the Indian, and the dweller in the tropical regions. These character studies give motive for the larger part of the work in literature, manual training, art, physical culture, nature study, rhythm, and number work.

Handwork related mainly to work in primitive life and nature study. Work in numbers brought in wherever practicable. Most of the work is done in the classroom under the direction of the class teacher

Study of Life in Cave Period. — "Story of Ab" used as setting.

Construct cave on sand table showing relation to water supply and trails of animals.

Dwell on importance and uses of fire. Illustrate fire-making with fire drill by working until wood is hot.

Show models of early stone tools. Make wooden handle for stone hammer; secure by wrapping.

Make simple pottery bowls by coiling and modelling in hand; bake.

Broil small pieces of fresh meat before open fire, if available. Roast or bake clams in shell. Roast apples in ashes. Parch nuts. Parch and pop corn.

Illustrate primitive method of heating water by immersing hot stones in water contained in wooden bowl.

Progress to Communal or Tribal Hunting Stage. — Use life of Eskimo, dweller in tropical regions, and American Indians as setting, if desired.

Build igloo and Eskimo village of clay. Construct sleds and kayaks. Make Eskimo lamp of clay and show action.

Build tropical village of wattled huts. Make ladders and hammocks. Weave and plait mats of straw or other fibre for covering huts.

Construct village of hunting type with movable tents. Make bow and arrow, feathering arrow for steadiness in flight. Construct nets and weirs for fishing. Build wigwam covered with skins or mats. Weave mats from rushes or flags. Make moccasin. Illustrate making of dugout canoe by burning from log. Make canoe of birch bark. Model peace pipe of clay.

Study primitive methods of preserving food. Cook cranberries by stewing. Boil down berries for dyes to decorate wigwams. Pare, cut, and dry apples. Make sauce from dried apples. Bake apples in oven. Cook shredded codfish with milk and butter. Frizzle smoked beef.

All through constructive work bring in number work where practicable in simple measuring.

Study geographical relations of hills, valleys, and water courses to life of hunter and distribution of food. Connect with nature study on side of trees, leaves, nuts, berries, and selected animals. Make plant labels, leaf presses, and mounting books. Study wind and weather through charts and vane.

In art work draw, paint, and model figures and natural forms involved in story, and decorate a few things made in color. Make horse reins of cord.

Art

1. *Representation.*

Flowers and fruits. Weapons and implements in connection with primitive life.

Medium: brush and ink, color. Recognize, name, and make primaries and binaries.

Principles: proportion and action.

Draw and paint figures and natural forms involved in hunting and fishing stage.

2. *Design.*

a. Decorate things made, such as pottery, peace-pipe, canoe.

b. Principles: consistent variation in two spots, in size, color (full intensity), movement (in one direction).

3. *Picture Study.*

Holy Night, Correggio. Dignity and Impudence, Landseer.

Physical Training

Free Exercises. — Slow movements that involve large groups of trunk and leg muscles.

Hand Apparatus. — Musical dumb-bells; bean bags.

Heavy Apparatus.

Flying rings.

Preliminary work. — 1. Suspension. 2. Suspension and raising knees to chest. 3. Suspension and backward raising of feet. 4. Suspension and head backward bend with passive resistance. 5. Suspension and swinging.

Climbing Ladder. — No formal work.

Balance Beams. — No formal work; free use of arms for balance.

Dancing Steps. — Skipping, forward and sideward, running, sliding, hopping, touch step; executed in single file and in couples.

Games. — "Bean bags in a circle," "Teacher and class" with bean bags; "Cat and rat"; "Follow the leader"; "Hill dill"; "Herr Slap Jack," "Bean bag target."

Floor Formation. — Voluntary, after the child has learned the value of relative distances and proportion.

Music

A continuation of the methods and materials of the kindergarten with a view to more definite awakening of musical consciousness. Song as self-expression, by means of characteristic songs showing natural relation of feeling to voice, words, tone, rhythm, and accompaniment.

Songs for the Year. — Fall — squirrel, caterpillar, katydid,

crow, etc.; harvest — Corn song, Blow Wind Blow; Thanksgiving songs; Christmas and winter songs — frost, snow, ice; patriotic songs, primitive band and marches; Indian music, rhythms, and dances; spring songs — wind, rain, birds, bees, flowers. This work is aided by characteristic piano music, sketches, rhythms, and dances.

Phonics. — In connection with song study, vocal phonics are observed, qualities of sounds — dark, bright, rolling, humming, etc., oh, ah, e, etc. Simple vocal and breathing exercises in connection with interpretation.

Pitch. — Feeling for pitch, observation of high, low, medium, illustrated by speaking and singing voice, conversation, calls, imitations of sounds of nature and environment. Intervals defined by singing, pointing, and marking.

Rhythm. — Feeling for rhythm developed by means of acting of incidents of songs, skips, and marches, dramatizing of stories, Ab, Eskimo, Indian. This is again more definitely defined by clapping of familiar songs, marches, and dances; later marking and drawing on board. Materials — best selections from current children's music.

GRADE II

English

Literature.

Fairy Stories and Fables (Baldwin).
Stepping Stones to Literature, Book II.
Graded Classics, Book II.
Stories of Old Greece (Firth).
Four True Stories of Life and Adventure (Smith).

Supplementary

Short Stories of our Shy Neighbors (Kelly).
Letters from a Cat (H. H.).
Robinson Crusoe (McMurry).
Lolami (Bayliss).
Selected Poetry.

Phonetics.

1. Review first grade work.
2. Final e (mate), y (cry).

3. Phonograms: ie, oe, oa, ea, ai, ew, ue, er, ir, ur, or, ar, ay, oy, oi, ou, ow, gr, ight, kn, wr, sc, dge, tch.

4. Endings: ing, es, ed, er, est, ly, y, less, ness, ful, en, tion, sion, ous.

5. Syllabication.

Daily Instruction in Penmanship.

Memorizing Good Literature.

Mathematics

Special work: The addition tables through 9's; the multiplication tables through 5's

Addition Tables. — The combination of numbers of one order with numbers to nine; the new combinations developed, memorized, and applied in increasing and decreasing a number of two orders by a number of one order, no carrying, no borrowing. Drill on recognizing each combination at sight.

Addition and Subtraction. — *Written:* Subtraction based on the notion of addition. Numbers of three orders; in column addition, not more than six addends, the sum of no column to exceed 20; subtraction without and with borrowing; special attention to proofs and accuracy. Lead the children to read a column as they would a word. All written work to be limited as to time, to secure rapidity.

Counting. — By 3's to 30, by 4's to 40, by 5's to 50; within the space 1 to 20, by other numbers, as used in the addition table.

Measurements and Comparisons. — Quarter-dollar, half-dollar, dollar; gallon; second, minute, hour, day, week, month, year, explained; square inch; ounce, pound (avoir.); review of units of preceding grade; exercises with the units similar to those of first grade; making change to one dollar, with half-dollars, quarters, dimes, five-cent pieces, and cents, as in common practice; reading time by clock to hour, half, and quarter, and to minutes; writing each day the current date, *e. g.*, Thursday, April 23, 1903. Forming rectangles with inch squares of cardboard, or by surfaces of inch cubes; drawing rectangles with integral number of inches in each dimension, and separating them into inch squares; finding how many times the whole rectangle contains a one-inch square, and what part one row of squares is of the whole.

Fractions. — Halves and fourths, thirds and sixths of single objects; paper folded or cut into two equal parts, four equal parts, three equal parts, and six equal parts, and one or more of them named. This should be illustrated by drawings. To be followed by halves, fourths, thirds, and sixths of groups of objects. Partition exercises within the table, numerator one.

Multiplication Tables. — Tables based on counting, developed, memorized, and applied; stated both ways — 5 9's and 9 5's, or 5×9 and 9×5. *Division* within the tables; $45 \div 5$, and $45 \div 9$. Study of multiples. ***Written:*** Multiplicands of two orders, multipliers 2, 3, 4, 5; dividends of three orders, each digit to be a multiple of the divisor; divisors not greater than 5.

Signs. $\times$, $\div$. The sign of multiplication should follow the multiplier, as, $6 \times 5\text{c.} = 30\text{c.}$

Problems. — *Oral:* Addition or subtraction. *Written:* Problems should include finding the cost of several articles when the cost of one is given, and the reverse. Denominate units in problems, *e. g.,* how many pints in a number of quarts? how many quarts in a number of pints? treated as multiples. Each problem should involve but one operation, and written problems should be limited to integers of two orders. Problems to be genuine, as in preceding grade, and frequently so grouped as to convey interesting and valuable information.

Nature Study

1. *Cultivated Plants.* — (*a*) Plants of utilitarian value. The primitive life studies in this grade lead to the point where the pupils will understand the importance of cultivating the soil as a means of securing a larger and surer food-supply for human use directly or for useful animals. In greenhouse — dwarf bean, pea, radish and others planted by pupils in October or November and observed through all stages of their life history. Some very simple experiments on conditions of plant growth and functions of parts of plants. In garden — lettuce, beet, and other annuals started in greenhouse in March and transplanted to garden early in May. Corn, squash, carrot, turnip, parsnip, planted in garden in spring, studied until close of school in June, and completed when pupils enter third grade in autumn.

(*b*) Plants for the sake of their beauty. First, study those

planted by the pupils in first year. Bulbs in garden and in pots in late October. A succession of ornamental plants grown in greenhouse from September to May. Others started in February and transplanted out of doors in May. Still others from seeds sown in open ground.

(*c*) Some common weeds and their relation to cultivation of plants in garden and greenhouse.

2. *Common Wild Plants.* — (*a*) Some trees in fall, winter, and spring condition. Deciduous — horse-chestnut, sweet gum, chestnut, elm. Some of the familiar evergreens. In garden and greenhouse plant seeds of such of these trees as are obtainable.

(*b*) Autumn and spring flowers. Acquaintance with about twenty common wild plants (chiefly herbs), identified by their flowers. Attention to other important characteristics of the plants. Collect and plant specimens in garden and pots.

3. *Insects.* — Grasshopper, katydid, cricket — their structure, function, and life history as related directly to important environmental adaptations and, indirectly, to economic relations. (In touching the economic side do not over-emphasize so as to teach universal warfare against insects, for under ordinary conditions the harm to vegetation by insects is insignificant.)

4. *Useful Domestic Animals.* — Horse, cow, sheep, goat, dog. Form and habits as related to care of themselves and their use to man. Care of them by man. (The dog was considered only as a pet in the first grade, but his use to man may be considered here.)

5. *Aquaria and Vivaria.* — The common toads and frogs and the development of their eggs. Fishes and other animals in aquaria and vivaria for incidental observation.

6. *Physical and Geographical Nature Study in Relation to Life of Plants, Animals and Man.* — (The following studies should be closely limited to the observations of the pupils, and it is not desirable to add the explanations which properly belong in the upper grades.) Water — its forms (freezing, vapor, etc.) and its uses to plants and animals. Clouds and rainfall. Frost and dew and their effect on plants. Temperature and its relation to plant and animal life. Sunshine and temperature in summer and winter. Position of sun in September, December and June determined by marks in the greenhouse, and considered with reference to intensity and amount of sunlight. Air and wind. Directions of winds. Their effect on temperature and relation to rainfall. Direct atten-

tion to each marked change of the weather from September to June, especially emphasizing its effect upon habits of animals and the condition of plants in the garden, parks, and woods.

Hand Work

In the second grade the work in primitive life is continued through the pastoral and agricultural stages. The work done in the first grade is used as a basis for thought and comparison, and an effort is made to have the children appreciate the sequence in development. The problems are still those of securing food, clothing, and shelter, but with different surroundings. The method used is discussion, in which the children imagine the conditions and then invent, reason, and work out the results. Much of the literature, nature study, hand work, and art relate to this work.

In the pastoral stage the increase of material resources, milk, wool, leather, etc., which resulted in greater certainty and variety in the supply of food and clothing, is dwelt upon as the significant advantage over the preceding forms of life. Also the development of tribal organization, and the patriarchal form of government.

In the agricultural stage the changes which were brought about by settled habitations and cultivation of the land are developed. Greater and more certain supply of food, permanent homes, the possibility of individual property, and also accumulation of wealth. Ideas of the growth of rights and laws through use and custom.

Pastoral Stage. — Children cut wool from a fleece and wash different samples of it.

Have children study difference between scoured and raw wool and develop fact that raw wool is best for spinning. Experiment in cleaning raw wool mechanically. Dye wool with vegetable dyes made by class. Make cards of thin wood and nails.

Have children try to spin wool thread between hands or by rolling on knee. Develop idea of spindle. Make spindles of sticks, weight with clay. Have each child try to spin a small amount of thread and weave with spun fibre.

Build from loom. String warp of manufactured yarn. Develop idea of shuttle and needle, and make same.

Weave broken bands of one or more colors near ends.

Work for pleasing arrangement of stripes. Possibly add center effect of rectangular spot or of solid lines parallel to ends.

For pictorial ensemble of this stage build encampment showing flocks gathered into corral for the night. Model figures of sheep, dogs, and horses. Make saddle bags for horse. Make tent of cloth, shaped like Asiatic tent, requiring sewing. Make rugs for floor.

Study care of milk. Make butter, using individual pint cream jars and wooden dashers. Make milk toast, cheese with sour milk, and rennet custard.

Agricultural Stage.

Build pueblo of dried clay bricks. Locate near river; show irrigation.

Model on sand table river system with hills, plains, and valleys. Plan and construct primitive vegetable, grain, and dairy farm on sand table.

Build house of dried brick walls and thatched roof, barn and sheds of same. Make fences of stone or of small branches. Make model of primitive plow.

Follow development of pole sledge using rollers into cart with wheels. Make cart with solid wheels fastened to axle.

Make if possible simple forms of market basket from willow or ash splints. Make farmer's hat of corn husks or raffia.

Shell, parch, and grind Indian corn. Develop idea of mealing stones and circular mill. Sift grain, and bolt through bolting-cloth bags sewn by children.

Cook corn cakes of ground meal, water, and salt. Make cakes with manufactured meal, adding eggs. Make corn meal mush. Cook modern form of corn, such as "corn flakes." Bake or roast squash.

Compare wool fibre with that of cotton or flax. Spin some of each.

Weave narrow band of cotton. Vary warp threads by placing narrow band of color at each side. Make into napkin ring or purse.

Make simple pottery and decorate. Take motives from old designs. Bring in idea of wheel. Study picture writing

on clay. Make clay candlesticks and lamps for oil. Make candles by dipping and moulding.

Nature Study.

Make trellises for plants in schoolroom; envelopes and boxes of paper to hold seeds. Make digging sticks and seed labels of wood for work in garden.

Make napkin rings, picture frames, etc., of braided raffia for Christmas work.

Art

1. *Representation.*

Simple sprays, flowers, etc. Model and draw animals, figures and scenes from family life, in pastoral and agricultural stages.

Medium: brush and ink, pencil, color. Teach primaries, binaries, hues.

Principles: portion, action, simple placing.

2. *Design.*

a. Woven blankets, cotton napkin ring, simple pottery with incised decoration.

b. Principles: consistent variation in three spots; size, color, movement (two ways).

3. *Picture Study.*

Madonna Gran Duca, Raphael. Can't you talk? ——?

Physical Training

Free Exercises. — Slow movements that involve the large groups of trunk and leg muscles.

Hand Apparatus. — Musical dumb-bells, bean bags.

Heavy Apparatus.

Flying rings.

Preliminary work: 1. Suspension. 2. Suspension and raising knees to chest. 3. Suspension and backward raising of feet. 4. Suspension and head backward bend with passive resistance. 5. Suspension and swinging. 6. Body vibration.

Climbing Ladder. — No formal work.

Running Jump. — Straightforward jump (without use of spring board).

Balance Beams. — Poise; rhythm of step; free use of arms for balance.

Dancing Steps. — Skipping, forward and sideward; running; sliding; hopping and extension of foot; gallop step; follow step.

Games. — "Teacher and class" with basket ball, and bean bags; "Dodge ball"; "Circle ball"; "Follow the leader."

Music

A fuller recognition of music as language, and pitch as a means of expressing it. Pitch becomes a musical vocabulary. Continuation of songs as self-expression and as a means to natural vocal development. Also used as a basis for defining relative pitch and stress.

Songs of the Year. — Fall — spider, katydid, crow, seeds, Nature's lullaby, Mill song, Indian Corn song, Thanksgiving and Christmas songs, leading into pastoral series — songs of wool, spinning, weaving, knitting, Swedish weaving game and rhythms, shepherds' activities, folk games, spring themes and imitations. The characteristics of these songs in words, rhythm, melody and action are studied. Breathing and vocal exercises, vowel studies and interpretation.

Pitch. — Previous knowledge of pitch by ear and degree now made definite by introducing syllable names, defining and naming key tones, finding individuality of tones, picturing with signs, study of characteristic sequences of tones, the making of original song sentences on class themes.

Stress and Duration. — Defined by means of Mother Goose, words of different number of syllables, study of metrical groupings in twos, threes, fours, defined in circles, long and short markings. (Selected material in the hands of the teacher.)

GRADE III

English

Literature.

Hiawatha.
Story of Aladdin.
Greek Myths.
Norse Myths.

Alice in Wonderland (Carroll).
The Bee People (Morley).
Stepping Stones to Literature, Book III.

Supplementary

History of Whittington (Lang).
Alice Through the Looking Glass (Carroll).
Book of Saints and Friendly Beasts (Brown).
The Story of Ulysses (Cook).
The Golden Numbers (Wiggins).
Adventures of a Brownie (Craik).
Buzz.
King Arthur and his Court (Green).
Graded Literature, Book III.
Nature Myths (Holbrook).

Dictation. — Emphasis upon this work.

Composition. — (Oral work to precede written.)

1. Model compositions, developed by teacher.
2. Reproduction of simple narrative from reading and from ordinary experiences.
3. Letter forms (simple).
4. Simple outlines of composition with topics given.
5. Practice in expressing things in different ways.

Sentence Study.

1. Review practice in making simple statements, or questions. Practice in changing from one to another.
2. "Filling in" omitted words, as, *is* and *are, was* and *were, has* and *have,* etc.

Forms.

1. Indention of paragraphs.
2. Apostrophe in singular possessives.
3. Plurals; regular.
4. Undivided quotations.
5. Diacritical marks (long and short vowels).
6. Spelling, drill on words that occur in lessons and text-book.

Phonetics.

1. Review of previous work and drill where necessary to strengthen the reading.
2. Require clear and distinct enunciation in all work.

Daily Instruction in Penmanship.
Memorizing Good Literature.

Mathematics

Special work: The multiplication tables through 9's; multiplication and division; multipliers and divisors, two orders

Multiplication Tables. — Tables based on counting, developed, memorized, and applied. Division and partition within the tables. Study of multiples. Dividing at sight, with remainders. *Written:* Writing Roman numerals to XX. Multiplication of numbers of three orders by numbers of one order; division of numbers of four orders by numbers of one order, the dividend to be a multiple of the divisor. All written work to be limited as to time as in Grade II.

Fractions. — One-half to four-fifths; 1-2, 1-3, 2-3, 1-4, 2-4, 3-4, 1-5, 2-5, 3-5, 4-5. Numbers that are multiples of the respective denominators. Halves reduced to fourths, and to sixths; thirds to sixths. These fractions added and subtracted at sight. *Written:* Addition of two mixed numbers containing the foregoing fractions; subtraction of mixed numbers when the fraction of the minuend is larger than the fraction of the subtrahend. Finding fractional parts of integers of three orders, which are multiples of the denominators of the fractions.

Addition and Subtraction. — *Oral:* The 45 combinations as in the preceding grade. A number of two orders increased or decreased by a multiple of 10, *e. g.*, $32 + 20 = 52$; $52 - 20 = 32$. Increasing or decreasing at sight a number of two orders by a number of two orders. Subtraction based on addition, as before, and so in subsequent grades. *Written:* Numbers of four orders including dollars and cents, written with a decimal point; long columns of figures in addition should be avoided; special attention to proofs, accuracy and fair speed.

Counting. — By 6's, 7's, 8's, 9's, as a preparation for the multiplication tables; also, by 2's, 3's, 4's, 5's, 6's, 9's, beginning with 1, 2, 3, or 4 to about 100.

Multiplication and Division. — *Oral:* Special drill in rapid multiplication and division by numbers of one order, to fix the multiplication tables. *Written:* Multiplication of numbers of

three orders, including numbers containing dollars and cents, by numbers of two orders. Special attention to proofs. Short division by 20, 30, 40, etc.; long division introduced with divisors whose unit figure is 1 or 2.

Measurements and Comparisons. — Review of denominate units already studied. Square inch, square foot; cubic inch; forming rectangular solids with inch-cubes; finding how many times the whole solid contains a one-inch cube, and what part one layer of cubes is of the whole. Finding the area of rectangles by taking the product of the number of square inches in each strip by the number of strips; rectangles divided to show objectively that 1-2 equals 2-4 equals 3-6; 1-3 equals 2-6. Objective comparison of half and fourth to find how much larger is the half; of half and sixth, third and sixth, half and third, to find how much larger or smaller.

Problems. — Oral and written problems should include a reduction of units of one denomination to units of the next higher or lower, and the finding of the cost of one or more articles, the cost of one or more being given; also the cost of 6 articles, for example, when the cost of 3 is given; of finding the number of articles that can be bought for 10c, when, say, 3 cost 5c, and the like. Problems may involve more than one operation. Written problems of two operations should be limited to integers of two orders. Information groups of problems as in Grade II.

Nature Study

1. *Garden Work.* — *In Autumn:* (*a*) Complete studies of plants grown during the summer by pupils of this class, review life histories from seed to maturity; methods of cultivation; the general structure and characteristics of the fully developed plants, relation of fruits to flowers as seen in a series of stages in development of squash; uses of the plants to man and animals. (*b*) Plant winter wheat and rye. *In Spring:* (*a*) Plant barley, oats, millet, buckwheat, and sugar cane; follow development of these until close of school year. (*b*) Set roots of biennials (cabbage, beet, turnip, carrot) grown from seed in the preceding summer, in order to complete the life histories in development of seed; follow development until close of school year in June. (*c*) Observe the winter wheat and rye planted in preceding autumn. (*d*)

Transplant tomato and sweet potato from the greenhouse; onion from seed and from bulbs; potato from seed, from whole tubers, and from buds or "eyes." (*e*) Transplant to garden some ornamental plants propagated in greenhouse from seeds and cuttings.

2. *Greenhouse Work.* — (*a*) Various ways of propagating plants; experiments with seeds, cuttings, tubers, roots, leaves of certain plants. (*b*) Plant together and compare germination and early development of bean, pea, squash, corn. (*c*) Ornamental plants started in early autumn from seeds, cuttings and bulbs, and observed each week during their development. (*d*) In March start seedlings of tomato and certain ornamental plants for transplanting to the garden.

3. *Animal Studies.* — (*a*) Aquaria and vivaria in schoolroom and greenhouse for occasional study; tadpoles, frogs, toads, turtles, salamanders, lizards. (*b*) Insects living in garden and greenhouse in autumn. In spring study colony of bees in the greenhouse and in observation box in schoolroom. (*c*) Earthworm in boxes of soil in greenhouse — habits of life and effects upon the soil.

4. *Wild Plants.* — Encourage pupils to continue the studies begun in earlier grades. Review common wild flowers of autumn and spring and aim to extend interest and acquaintance. Transplant some wild plants to the garden.

5. *Geographical Nature Study.* — (See geography for this grade.)

Home Geography and Local History

Review of the central ideas of a home; division of activities and government in a home; grouping of homes and stores in upper New York City; grouping of homes in early Manhattan.

Streets and roads; their use and arrangement. Development of New York streets historically.

The parts of a street: pavements, sidewalks, sewers, lights, fire alarms, etc. The caring for streets, leading up to —

Need of government and brief study of local government as illustrating the government conditions in a home. Comparison with smaller and larger forms of government and with government in early Manhattan.

Relation of streets and homes and of individuals to local

surface features. Distribution of homes, business sections, educational institutions, roads, car lines, etc., in New York City. Early life conditions in Manhattan.

Drainage of locality as related to slopes. River valleys; their parts and use. The seasonal weather as related to sports of children, school term, growth of vegetation, etc.

The principal occupations of the locality. Industries and trade as results of grouping of people. The occupations of the Dutch and early English in New York.

Transportation and communication in modern New York compared with conditions in early Manhattan.

Distance and direction. Local maps.

The relation of pupils to neighboring regions traced through food, clothing, and other conditions of daily life. Commodities not received by land.

Our relations to the ocean and shore line. Harbors and their value, wharves, lighthouses, life-saving stations, etc., as aids to commerce.

Our trade relations with Western and Southern Europe, Southern and Eastern Asia, Northern and Southern Africa, Central and South America, leading up to a concept of the world.

Lives of peoples and occupations of these regions studied briefly.

Heat belts of world located on a globe.

World maps.

Hand Work

The specific theme in the continuation of the primitive life work in the third grade is that of exchange of commodities through trade and transportation, the inventions developed thereby, and the changes produced in the modes of life. Important facts of this stage are the development of the use of metals, establishment of a medium of exchange, methods of measuring and recording, and the impetus given to the arts.

The idea is developed that in order to carry on commerce, not only must a surplus of food be raised, but it must be preserved from decay, means of storing it must be devised, and its transportation to a considerable distance provided for. On the other hand, the purchasers must be prepared to offer equally desirable

material in exchange, and dwellers in unproductive districts must develop what special resources they have.

Phoenicia is chosen as a dramatic setting for this period. A study is made of the sources of livelihood of a people who had come through the preceding stages of evolution, but who found themselves between forest-clad mountains and the sea, on land incapable of supporting flocks or agriculture.

As the waterways formed the simplest and most natural arteries of ancient trade, this naturally led to voyages of discovery, and the probable routes of the early merchant venturers are traced on globe and sand-table.

In continuing the era of discovery, the environment of the Norse viking is studied in relation to its effect upon the life of the people. Following this, a brief study is made of the voyage of Columbus and that of Henry Hudson in the Half-Moon, emphasizing the fact that each was seeking a short route to India for trading purposes.

Early local history begins with the establishment of a Dutch trading-post on Manhattan Island. The arrival of Peter Minuit and the band of colonists makes trade possible with the Indians, with the mother country, and with the English colonies. The work of the early colonists: building of the fort, dwellings, storehouse, ships, the making of roads, and procuring of food, is studied in detail, comparison being made between the methods in use then and now.

Much of the work is related to the study of primitive life and geography. Some unrelated work in cord, basketry, cardboard, and sewing is also introduced. As far as possible the work is done in the classroom and under the direction of the grade teacher.

General Constructive Work.

Work out trade routes on sand map, representing mountain ranges, river valleys, and sea.

Build galley or viking ship.

Make in clay and other materials caravan traveling through desert.

In developing the need and idea of money and exchange, make simple balances of wood, and money of sheet lead.

Make bricks in moulds, and bake. Build house with bricks and mortar, possibly of Phoenician or Dutch type. Bring in idea of working to reduced scale.

Make simple pottery forms with some effort to secure pleasing and beautiful shapes. Ornament with color and incised bands.

Make hangings with outline stitches.

Make wind vane and instrument to measure inclination of sun.

Cook several staple articles of trade, as tea, coffee, cocoa and sugar.

Cook shellfish.

Basketry.

Make simple coiled baskets of raffia and grasses.

Cardboard.

Make and decorate trays, boxes, picture frame and candle shade.

Sewing.

Simple cross stitch embroidery, on coarse materials. Make penwipers and bags. For Christmas make bag, basket, picture frame or candle shade.

Art

1. *Representation.*

Flowers, fruit, sprays. Sketches of pose in Greek costume. Galleys, and other motives connected with period of early trade and discovery.

Medium: brush and ink, pencil, color — hues, neutralization.

Principles: action in animals, and in plant growth; placing, influence of enclosing form.

2. *Design.*

Simple poetry forms. Incised band designs.

Design figures for painting on pottery.

Principles: consistent variation in spots, lines (length), movement (opposition), balance (bisymmetry).

3. *Picture Study.*

The Divine Shepherd, Murillo. The Sick Monkey, Landseer.

Physical Training

Free Exercises. — Slow movements that involve large groups of trunk, arm, and leg muscles.

Hand Apparatus. — Musical dumb-bells; bean bags.

Heavy Apparatus. — Flying rings. Repetition of work in Grades I and II. The child learns to start the swing.

Climbing Ladder. — No formal work.

Running Jump. — Straightforward jump; without spring board.

Balance Beams. — Four in use simultaneously; leg extension; knee raising; touch step.

Dancing Steps. — Running, skipping, hopping, and leg extension, gallop step, follow step, polka step, "Amsterdam dance."

Games. — "Dodge ball," "Touch ball," "Circle ball," "Three deep," "Beetle goes round," "Relay bean bag race."

Music

This grade represents the transition period from the emotional and natural uses of music to its more formal presentation, process and experiment giving way to formal knowledge. This brings a definite change from ear to eye, from rote to sight-singing, the recognition of previously gained impressions of pitch and rhythm in their printed and recorded forms.

Songs for the Year. — Songs of Nature and seasons, spider, owl, "Cuckoo clock," patriotic hymn, "Harvest Home," and hymns, Christmas carols and winter songs. In connection with trade and transportation, poems and songs of Vikings and Norsemen, boat and sea songs, accompanying rhythmic plays and games, fairy stories illustrated by piano, voice, and action. In connection with interpretation, breathing and vowel exercises.

Pitch. — Greater familiarity with tones of key, grouping of tones in phrases of motion and rest, study of cadence.

Introduction to Books. — Ideas of tonality and rhythm worked out in previous grade now related to printed page; pitch, key, rhythm, recognized in notation and staff. This study is carried forward from general observation of material, position of notes upon the staff, time, measure, pulse groupings and divisions, comparing and contrasting passages, placing key, writing from dictation.

Rhythm. — Continued defining of stress and duration in relation to value of notes and measures. Study of metrical grouping of words and rhymes in connection with rhythmic notation in music. Original rhymes, couplets and quatrains made on school subjects. Books used, Primer of Modern Music Series.

GRADE IV

English

Literature.

Water Babies (Kingsley).
King of the Golden River (Ruskin).
Beasts of the Field (Long).
The Bell of Atri (Longfellow).
Birds of Killingworth (Longfellow).

Supplementary

Lady of the Lake (Scott).
Jungle Book (Kipling).
Grandfather's Chair (Hawthorne).
School Poetry Book (Penniman).
Diddy, Dumps and Tot.
Selected Poetry.
Stories of Birds and Beasts (Wright).

Dictation.

Composition. — (Oral composition to precede written.)

1. Reproduction of simple narratives from lessons and from ordinary experiences.
2. Letter writing.
3. Use of outlines to secure coherence.
4. Practice in saying things in different ways.

Sentence Study.

1. Practice in making easy sentences, declarative, interrogatory, imperative, and exclamatory. Practice in changing from one form to another.
2. Filling in blanks in sentences with omitted words, especially with verbs, adjectives, and adverbs. (Names of these not given.)
3. Practice in identifying and supplying whole subject and whole predicate (names given). Children taught to apply this test to their sentences in composition.

Forms.

1. Review work of Grade III.
2. List of abbreviations extended.
3. Quotations, divided and undivided.
4. Apostrophe, in possessives and omissions.
5. Plurals, usual and unusual words in common use.

6. Diacritical marks. Use of dictionary.

7. Spelling. Systematic drill, mainly written. A few of the simpler rules given.

Meaning and Use of Words.

1. Common synonyms and homonyms.

2. Drill in words commonly confused: *lie* and *lay, sit* and *set, shall* and *will.*

3. Other common errors of speech noted, when necessary.

Daily Instruction in Penmanship.

Memorizing Good Literature.

Mathematics

Special work: Multiplication and division; multipliers and divisors, three orders; integers, common fractions, and decimals related

Multiplication and Division. — Oral: Multiplication tables through 12×12; multiplication of any two numbers whose product is less than 50; separation of numbers less than 50 into two factors. Rapid drill as in preceding grades. *Written:* Multipliers and divisors of three orders. Special attention to proofs.

Addition and Subtraction. — Oral: Rapid drill (see third grade); sum and difference of two numbers of two orders, *e. g.*, $28 + 35$: 28, 58, 63; $95 - 66$: 95, 35, 29. *Written:* Special attention to accuracy and rapidity.

Fractions. — Fractions classified, and terms defined. Special attention to business fractions: ½, ⅓, ⅔, ¼, ¾, ⅕, ⅖, ⅗, ⅘, ⅙, ⅚, ⅛, ⅜, ⅝, ⅞; operations on multiples of the denominators within 100. *Written:* Addition and subtraction of fractions whose least common denominators may be found by inspection; the same of mixed numbers. Multiplication of an integer by a mixed number containing one of the business fractions. Easy fractions reduced to lowest terms.

Counting. — By 11's to 132, by 12's to 144, as a preparation for the multiplication tables; also rapid drill with numbers under 10 to about 100, beginning with 1, 2, 3, and so on.

Notation and Numeration. — Integers: By orders to a thousand — units, tens, hundreds; by periods beyond a thousand — units, thousands, millions, billions. No number names beyond billions. Relation of orders, and of periods. *Decimals:* Principles of the decimal notation extended to the right of units, based on the writing of U. S. money. Relation to common fractions.

Integers. — *Oral:* Rapid drill in the four operations as in the preceding grades. *Written:* The four operations continually reviewed.

Measurements and Comparisons. — Mile; distance between a few well-known places in the city; dimensions of city lots. Plots of land cut up into building lots of definite dimensions; cost of fencing; value of each lot from value of the whole; simple exercises pertaining to the purchase of a tract of land, and selling by lots. Long measure, square measure, cubic measure; tables developed, *e. g.,* square inch and square foot compared, and then memorized. Lengths and areas as in Grade III; volumes of rectangular solids by taking the number of cubic units in one row or one layer as the multiplicand; dimensions of room, area of floor, contents of room estimated, and then measured; similar exercises with boxes; diagrams drawn to scale to represent areas; rectangles separated into equal parts, and easy fractions of them compared, to find how much greater one is than the other. Lengths measured to the half-inch, fourth-inch, eighth-inch. United States money, time, weight (avoir.). Rectangle separated into eight equal parts; ½, ¼, and ⅛ compared to find how many times ½ contains each of the others; what part of ½ is ¼? ⅛? what part of ¼ is ⅛? Also other fractions in series.

Problems. — Finding a quantity when a fractional part of it is given, occasionally illustrated by drawings, and by objects. Concrete problems in the work of the grade; finding what part one number is of another. Bills made out and receipted; the model should have date, name, address, and business of the maker and name and address of the debtor. Problems may involve more than one operation; explanations of processes may be required; operations may be indicated by signs. Information groups of problems as in preceding grades.

Denominate numbers. — Reductions limited to two operations.

Geography

North America

Position of North America and the United States in the heat belts. Climate of the growing season in the several heat belts. Position of North America as related to Atlantic and Pacific Oceans and to Eastern Hemisphere.

The larger physical features of North America; *i. e.,* Atlantic Slope, Appalachian Highland, Central Plain, Cordilleran Highland and Western Coast. Direction of flow and relative importance of the chief streams.

United States by political divisions, each division to be studied as to the occupations of the people in general, in accordance with the following outline:

New England. — Surface and drainage; summer and winter climate; manufacturing as dependent upon water power, climate, raw materials, and markets; agriculture and dairying, character and relative importance; lumbering, distribution, relation to rivers and climate; quarrying, distribution and character; commerce and commercial cities; scenery. In each industry chief centers are studied and located, and relation to other industries emphasized.

Similar treatment of the Middle and South Atlantic States, Northern and Southern Mississippi Valley States, Plateau States, Pacific Coast States, in which the relations between areas commercially and industrially are emphasized.

Observational work on weather, sun's position, etc., to be carried on for at least three months during the year, so as to lay a foundation for later study of the weather and climate.

History

In this grade again history and geography work are combined. The previous years have given some general notions of the dependence of the human race upon food, shelter, and clothing, and the development of human life produced by the changing and varied methods of satisfying these most fundamental necessities. Some crude ideas of the simplest forms of organization have been developed, and organization has been shown to be the outgrowth of economic, industrial, and social processes. The growth of rights and customs into law, and the development of legislative bodies of some description, have been traced to human necessity. These general concepts upon which all historical thinking rests — organization, food, shelter, clothing, law, property, rights, and customs — have been developed.

The idea of personality, from which children gain some of their most real and lasting ideals, has received emphasis through

biographies, such as those of Ab, David, Stuyvesant, etc. The history in this grade is biographical in character, and is explanatory of the conditions which have been characteristic of a district or section. It gives a pictorial view of the most important events of the history of North America without any attempt to follow a chronological order. The biographies chosen are those of representative men who played an important part in the life of which they were a part and are a type; of men of action and accomplishment, though by no means always of war, such as Winthrop, Bradford, Williams, Stuyvesant, Smith, Boone, Washington, Clark, Astor and others. The work is of necessity largely given to the students by the teacher, since no text of this description is available. Reference books are used wherever possible. Brief outlines of the work are made by the children, and outlines indicating the chief points in the work covered are given them by the teacher, so that they have in written form the means of ready and rapid review.

Nature Study

1. *Garden Work. — In Autumn:* (*a*) Complete studies of wheat, oats, rye, barley, millet, sown in autumn and spring of third year. (Samples of these plants which mature in summer will be preserved.) Relate to the industrial geography of this grade. (*b*) Complete studies of life histories of biennials (beet, parsnip, carrot, cabbage) raised from seed sown in spring of second year.

2. *Greenhouse Work.* — (*a*) Experiments with soil to determine relation to plant-foods and water. (*b*) Experiments to show effect of light, heat, air, water, and food upon growth of plants. (*c*) Food-storage experiments with roots, stems, bulbs and seedlings. (*d*) Experiments with pollination of squash and cucumber.

3. In autumn, winter, and spring make occasional visits to garden and greenhouse for the purpose of directing attention to certain plants grown there by other classes or by the gardener. This will help to review previous lessons and extend acquaintance and interest to many plants not directly mentioned in the outline for nature studies.

4. *Animal Studies.* — Aquaria and vivaria in schoolroom for

occasional observation, and study of animals mentioned in reading. If possible, make visits to aquarium in Battery Park to observe the fishes, and to Zoölogical Park to direct attention to the more prominent wild mammals, their characteristics, adaptations, and geographical distribution.

Hand Work

Differentiation of course of study becomes marked. Hand work related mainly to domestic occupations of the Colonial period. Work done in special room, and under the direction of the teacher of hand work.

Prepare vegetable dyes and dye wools for weaving.

Make loom with beams arranged for continuous warp and with solid heddle and perhaps simple form of temple. Design and weave all-over pattern of single line arrangement. Sew individual pieces together to form table cover.

Study and design check and plaid patterns.

Model bean pots, pitchers and other kitchen ware.

Make baskets with raffia and native grasses. Aim at design and control of form. Work out band decoration in color.

Work up specimens of white pine, oak and sugar maple obtained from branches, and discuss for what purposes each wood might be used.

Build small log house or block house.

Erect small furnace of brick in foundry. Melt lead in furnace and cast in impression made in sand.

Build small fireplace of moulded brick and mortar. Make and place crane and andirons of strip iron.

Boil down syrup for maple sugar.

Bake beans, brown bread, and Indian pudding illustrating old methods of cooking in brick ovens.

Make cardboard or raffia picture frame, calendar mount, box or basket for Christmas work.

Art

1. *Representation.*

Sprays, flowers, nuts, etc. (broad treatment, three and four tones).

Note growth, action. Posed figure. Motives in connection with Colonial period, spinning wheel, etc.

Medium: black and white, color. Scale of five tones of gray. Neutralization through complements; primaries and binaries.

Principles: proportion, action. Foreshortened circles. Placing (divided background).

2. *Design.*

Invent all-over patterns, single line arrangement, for weaving. Check and plaid patterns. Baskets for native grass weaving, with band decoration.

Principles: consistent variation in spot (form, size, color), movement, simple rhythm (lines), repetition of spot. Balance (bisymmetry, simple size balance). Emphasis (size, color, intensity).

3. *Picture Study.*

Children of the Shell, Murillo. First Step, Millet.

Physical Training

Free Exercises. — Movements that involve smaller groups of arm, trunk, and leg muscles.

Hand Apparatus. — Dumb-bells (wooden), bean bags.

Heavy Apparatus. — Flying rings (Repetition of work in Grade III). Vibration of body and feet in rings. Vibration of body while swinging.

Climbing Ladders. — Alternate hand and foot.

Running Jump. — Straightforward jump (without spring board).

Climbing Ropes. — 1. Hanging and preliminary movements. 2. Informal climbing.

Balance Beams. — Knee flexion and extension, leg extension forward and backward with body bending, polka step.

Dancing Steps. — Galop step, polka step, heel and toe polka step, minuet, schottische step.

Games. — "Preliminary bean bag," "Center stride ball," "Medicine ball," "Dodge ball," relay races, practice for basket ball, tossing and catching.

Music

More definite analysis of the elements of music in relation to sight reading. Musical analysis carried forward by means of song study.

Songs for the Year.—Songs of nature and seasons, festival songs, songs correlated with literature (Water Babies), Scotch historic songs, colonial and plantation songs. In connection with song interpretation, breathing exercises, study of words, vowel and consonant sounds.

Study of Music Structure. — Experiment and practice in adapting the scale to the fixed pitch; relation to the staff by means of sliding scale and chart. Making grand staff, learning fixed pitch names and their uses, discovery of sharps and flats, and reasons for using them. Practice in writing in different keys, adjusting with sharps and flats, finally placing in signature, use of chromatics as color tones in song, study of same from chart and in connection with songs.

Rhythm. — Study of rhythm with reference to subdivision of pulses and rests.

This work is carried forward in connection with First Book, Modern Music Series. Beginning of simple two-part singing in imitative passages and canons.

GRADE V

English

Literature.

Wonder Book (Hawthorne).
Tanglewood Tales (Hawthorne).
Odyssey (Selections from Palmer's translation).
Snowbound (Whittier).
Building of the Ship (Longfellow).
King Robert of Sicily (Longfellow).
Pegasus in Pound (Longfellow).
Emperor's Bird Nest (Longfellow).
Heroic Ballads (Montgomery).

Supplementary

Snow Image (Hawthorne).
The Great Stone Face (Hawthorne).

School Poetry Book (Penniman).
Macaulay's Lays.
Ulysses among Phæacians (Bryant).

Language Work.

1. Spelling, from text-book, and in other school work. Use of dictionary. Diacritical marks.

2. Abbreviations. Names of states and countries; letters; measurements: lb., bu., pt., qt., cqt., ft., yd., in., hhd., sq., cu.; prefixes and suffixes; apostrophe in contractions and signs of possessive.

3. Synonyms and homonyms; prefixes and suffixes; plurals formed by adding *s* and *es*, and those that are usual and unusual.

Definite Instruction in Penmanship.

Composition.

1. Letter writing, social.
2. Dictation (given an important place).
3. Outlines. Arrangement of material in composition; paragraphs, considered as divisions in the outlines.
4. Reproduction of stories, of lessons, etc.
5. Stories from pictures; accounts of scenes or incidents from daily life.
6. Study of the sentence (especially practice in saying things in different ways).
7. Punctuation. Review of previous work; use of comma after person addressed, in series, after *yes* and *no*, and in quotations; hyphen.

Memorizing Good Literature.

Grammar.

1. Sentence learned as consisting of parts; subject and predicate. Kinds of sentences; assertive, imperative, etc.
2. Nouns (common and proper) and verbs identified; pronouns identified.

Mathematics

Special work: Common fractions, decimals, and percentage

Review briefly the work of the preceding grades.

Common Fractions. — Oral: Special attention to business fractions; *e. g.*, cost of articles at 12½c. (⅛), at 16⅔c. (⅙), at 33⅓c. (⅓), at $1.12½, at $1.16⅔, at $1.33⅓. *Written:* Easy

fractions. Least common multiple developed and applied in addition and subtraction of common fractions; cancellation developed and applied in the multiplication and division of fractions. Definitions reviewed. Easy common and decimal fractions of denominate numbers reduced to higher or lower denominations.

Decimals. — Written: Numbers containing three decimal orders; addition and subtraction; multiplication and division by integers. Reduction of decimals to common fractions, and of common fractions to decimals. The four operations reviewed; decimal equivalents of the business fractions (see Grade IV) found. *Oral:* The equivalents of the business fractions memorized; simple applications to multiplication, *e. g.*, .87½ of 16? .87½ equals ⅞, ⅞ of 16 equals 14.

Percentage. — Oral: Definitions. The per cent equivalents of the business fractions found and memorized; simple applications; the three cases — finding a part of a number, finding a number when a part is given, finding what part one number is of another — briefly introduced by comparison with fractional exercises; commercial discount. *Written:* The per cent equivalents of the business fractions, simple applications. Very simple problems in the three cases; commercial discount.

Denominate Numbers. — Drill and review of all tables. Reduction; addition, subtraction, multiplication, and division. Operations limited to two and three successive denominate units.

Measurements and Comparisons. — Circular measure, time, liquid, dry. Circle divided by diameters into four equal parts; area and angles of 90°; perpendicular lines; right angles. Dozen, gross, great gross, quire, considered and applied. Score defined. Area of right triangles shown by paper cutting; rectangles reviewed. Lines, rectangles, or circles separated into equal parts to demonstrate the following principles; multiplying the numerator of a fraction; multiplying the denominator; dividing the numerator; dividing the denominator.

Problems. — Finding a quantity when a part is given; finding what part one quantity is of another. Concrete problems in all work of the grade, including the finding of areas of rectangles. Practical problems with all tables in denominate numbers, and in percentage, including problems to find the gain or loss in buying in one denomination and selling in another. Problems may involve more than one operation; explanations of processes may be

required; operations may be indicated by signs. Bills as in Grade IV; the terms debtor and creditor properly used and defined. Information groups of problems, as those bearing on our country's resources (food and clothing).

Geography

Europe and Asia

Treatment similar to that in Grade IV of the United Kingdom, France, Germany, Switzerland, Italy, the Iberian Peninsula, Belgium, The Netherlands, Denmark, the Scandinavian Peninsula, Austria-Hungary, the Balkan Peninsula, Russia and Northern Asia, India, Indo-China, the Chinese Empire and Japan. Each country to be studied as to

1. Location.
2. Larger physical conditions.
3. Special industrial features and conditions.
4. Relations in commerce.
5. Peoples and national characteristics.

Observational work of the previous grade to be continued.

History

The purpose of the work in this grade is to give the pupils some knowledge of the most important and characteristic deeds and ideals of the Greeks and Romans. The topics chosen for study are of a nature such that children can and do think about them; they are treated from the point of view of the Greeks and Romans; they are characteristic of the things which occupied the time, thought, and resources of these peoples; they show a crude people growing less crude, institutions arising to meet recognized needs, and the development of the æsthetic and the legal side of life.

The topics chosen for study are intended to place emphasis upon those elements and factors of life which were most characteristic of the life of each people, and which became permanent contributions to the world's civilization. In Greek history the æsthetic, intellectual, and literary side of life receives emphasis; in Roman, the governmental and legal. The pupils are taught to try to find out the Greek and Roman ways of doing things and of

thinking about things, to see the different things that occupied their attention, and to contrast these with our own. Thus they come to see that historic life and present life are parts of the same whole, that they are debtors to these their fellows who lived long ago.

The biographical element remains a strong feature of the work, although the point of view chosen is that of the entire people. The end sought is an appreciation for and sympathy with these peoples, their ideas and ideals, their purposes and difficulties.

A part of the training given in this year is in the use of a text-book and simple outlines for class use, ability being gained to read and report on references selected by teacher. The method of frequent reviews of the work covered in a period of two weeks or more and daily reviews of any topic having a bearing on the lesson, emphasizes the necessity for retaining in mind that which has been fully treated in class, and fastens the great essentials in memory. The lantern and photograph furnish material for the appreciation of the artistic side of life.

The topics chosen are: what the Greeks thought of their origin and early history before the time of Homer; Homer and the Greeks of his time; what people to-day think of the early history of Greeks; Lycurgus and the Spartans; Solon and the Athenians; the bonds which held the Greeks together; the union of the Greeks and the attempt to beat off Persians and Carthaginians; the return of the Greeks to normal life after the war; Pericles' attempt to make Athens first in Greece; the struggle between Athens and Sparta for supremacy; expedition of the Ten Thousand into Persia; conquest of Greece by Macedon; the spread of Greek civilization over the East; the parts of Greek life which have remained; the modern Greek; what the Romans thought of their early history and origin; how Rome became mistress of Latium; extension of Roman power over Italy; the conquest of the world; the period of internal disorder and revolution; the growth of an empire; the adoption of Christianity; the permanent contributions of Rome to the world's civilization; the modern Roman.

Nature Study

1. *Trees.* — Autumn, winter, spring: (*a*) Study of a mixed deciduous forest (New Jersey, north part of Central Park, Fort Washington Park and Riverside Park). Some of the com-

mon forest trees are studied in lower grades, but here it should be the aim to put the pupils into touch with a forest as a whole, made up of many kinds of trees. Attention should be directed to the native trees common in deciduous forests and which are of importance to man — for example, the oak, maple, chestnut, sweet gum, sycamore, beech, birch, linden, hickory. Study oaks first in autumn as a distinct kind (genus) of tree, then distinguish between at least three important species of oaks; then give attention to other trees common in the woods examined. Differences between species are as a rule too difficult and are not important for elementary school work. Study the striking characteristics of the trees — size, branching, bark, leaves, flowers, fruits — as they have an obvious relation to the life of the trees, to their use to man, and to identification. Use of the forest. Value and characteristics of various kinds of woods; other products (turpentine, resin, sugar); trees as protective cover of soil; effect upon climate, protection to wild animals and plants, æsthetic value.

(*b*) Elementary principles of forestry — requirements of trees determining growth and distribution. The reproduction of trees — how the forest begins and starts new growth (based upon pupils' earlier work in starting forest seedlings and on observations in woods), methods of distribution of seeds. Enemies of forests — man, fire, grazing animals, insects, wind, snow. Care of forests.

(*c*) Orchard and ornamental trees. In later years apple, peach and other trees grown from seeds planted in earlier grades will be used to illustrate methods of growing trees, grafting, pruning, protection from insects. In 1904 and 1905 this class will set fruit and ornamental trees in the school garden and these may be available for studies in coming years.

2. *Birds.* — Autumn, winter and spring — parallel with studies of trees. (*a*) Study living and mounted birds in schoolroom in order to give acquaintance with general form, parts and uses of the body. (*b*) Field studies of common birds — identification, movements, migration, food, records of observations. Individual work should be stimulated. (*c*) Studies of habits of young chicks and ducks. (*d*) If possible, class should visit Zoölogical Park to observe some of the striking modifications of birds in adaptation to habits of life. (*e*) Economic relations of some common birds; value of our domesticated birds; bird protection by special societies and laws; birds for decoration.

3. *Aquaria and Vivaria.* — Ants, slugs, snails, meal-worms, isopods and myriopods. These will be kept in the school, not as a basis for a series of formal lessons, but for frequent observations and occasional brief lessons designated to set new problems and stimulate the pupils to observe.

4. *Garden and Greenhouse.* — No definite work is planned for this and later grades, but the interest of pupils should be kept up by occasional visits of classes.

Hand Work

Extension of domestic or house industries into art handicrafts as related to present social needs. Work done in special room and under the direction of the teacher of hand work.

Basketry.

Coiled and woven baskets with two colors arranged for band and spot effects.

Embroidery.

Bags decorated in appliqué, and simple cross-stitches. Study flax. Weave piece of coarse linen.

Pottery.

Forms studied for fineness of outline with suggestions from the Greek. Rectangular outline used as basis of design. Pieces decorated with line, spot or band design incised and colored.

Metal Work.

Teapot stand made of strip iron. Units of form defined. Position of connecting lines made a problem with the class.

Candlestick; motive of straight lines given; proportion made problem for class.

Shade made of thin sheet copper; design on background perforated with wire nail.

Woodwork.

Match striker of thin wood of rectangular outline with rectangular pieces of sandpaper mounted in axis; decorate with grooved lines, colored to form a band.

Calendar mount. Use rectangle as basis of outline. Modify corners, aiming at harmony and fineness of propor-

tion. Break surface by solid or broken band in harmony with outline.

Pin cushion. Circular outline; design spot decoration for center; execute in color and outline.

Picture frame. Use rectangle as basis of outline; plan size and form of opening; modify outline and decorate surface with design.

Box for studs. Make box of thin wood sides with projecting top and bottom; decorate top with band and spot in center; execute with grooved or burned line and color.

Make calendar mount or picture frame of wood. Piece of pottery or a basket for Christmas work.

Art

1. *Representation.*

Flowers, fruits, vegetables, etc. (limited tones); certain lessons given from nature study point of view; details and growth closely studied. Motives in connection with domestic industries.

Medium: Pencil, brush, color. Scale of five primaries; neutralization of hues by complements.

Principles: proportion (pencil measurement introduced). Foreshortened curve lines (leaves) and straight line figures (including type forms). Characteristics of structure and action.

2. *Design.*

Band decoration and spot effects for basket weaving. Pottery, outline and mass, preparatory to modeling and firing, using all-over glaze with ornament in another color. Teapot stand; candlestick in straight lines. Shade for same in sheet copper. Other problems.

Principles: consistent variation, forms, sizes (Greek ideal), movement — rhythms of spot and line; opposition, line (force). Balance, sizes and tones (repetition). Emphasis through position and size.

3. *Picture Study.*

A Reading from Homer, Alma Tadema.

St. Anthony of Padua, Murillo.

Physical Training

Free Exercises. — Movements that involve the smaller groups of arm, trunk, and leg muscles.

Hand Apparatus. — Dumb-bells (wooden), bean bags, wands.

Heavy Apparatus. — Flying rings; repetition of work in the four lower grades; swinging and twisting of body on swing.

Climbing Ladder. — Alternate hand and foot; same hand and foot.

Running Jump. — Straightforward jump (without spring board); attention to form rather than height.

Climbing Ropes. — Hanging with leg movements, formal climbing.

Balance Beams. — Previous steps taken alone.

Dancing Steps. — Running, skipping, hopping, galop step, polka — heel and toe, minuet, schottische; executed in couples and fours; polka series (solo dance).

Games. — "Bean bag drill," "Center stride ball," "Curtain ball"; "one-legged relay race"; basket ball after preliminary practice.

Music

Further investigation of musical structure, analysis of time and tune, getting familiar with musical terminology, commence two-part singing in canons and two voices.

Songs. — Songs of seasons and festivals, folk and industrial songs of different countries, guild songs of different occupations. Song studies from Second Book of Modern Music Series, these also to be used for further musical analysis.

Music Structure. — Review analysis work with sliding scale and chart, mastery of material, signatures of time and key, sentence writing in different keys, comparison of two clefs, building octaves from lower half of grand staff into upper, noting changes of position of key from lines to spaces and spaces to lines.

Rhythm. — Mastery of rhythmic material analyzed in previous grade; construction of original sentences illustrating rhythmic difficulties. Practice in writing different pulse groups and their divisions.

Early history of music in connection with the history of the Greeks.

GRADE VI

English

Literature.

Rip Van Winkle (Irving).
Heroic Ballads (Montgomery).
Ivanhoe, The Talisman (Scott).
Saga of King Olaf (Longfellow).
Galahad (Tennyson).
Sohrab & Rustum (Arnold).

Supplementary

The Lay of the Last Minstrel (Scott).
The Christmas Carol (Dickens).
Snow Bound (Whittier).
Blue Poetry Book (Lang).
Robin Hood (Pyle).

Language Work.

1. Spelling, from text-book, from reading, and from other school work. Drill for five fifteen-minute periods per week.

2. Review work of punctuation, capitalization, quotation marks, contractions and abbreviations of previous grades.

3. The period, prefixes and suffixes, synonyms and homonyms as occasion arises. Plurals of nouns ending in *f* and *fe,* and other irregular plurals.

Training in Penmanship.

Composition.

1. Letter writing. Business and social, formal and informal.

2. Reproduction of stories and school lessons.

3. Simple narration and description. Imaginative stories and sketches.

4. Oral discussions.

5. Outlines and paragraphs considered as elements in the outlines. Statement of gist of paragraph in one sentence.

6. Sentences. Arrangement of, and practice in saying things in various ways.

7. Dictation.

Memorizing Good Literature.

Grammar.

1. Review sentences: assertive, imperative, etc.

2. Drill in identifying elements of sentence; subject, predicate, and modifiers. Drill in identifying parts of speech, and phrases and clauses.

3. Drill in grammatical expression; objective pronouns, forms, shall and will, should and would, strong verbs, etc.

Mathematics

Special work: Percentage applied to business; simple interest and its applications

Percentage. — Per cent equivalents of the business fractions as in the preceding grades; fractions of one per cent. Profit and loss, the direct case in commission; the direct case in commercial (trade) discount; simple interest for years only.

Measurements. — Review of previous work. Application to actual building problems. Rapid drill.

Denominate Numbers. — Review and drill in the fundamental operations as outlined in the preceding grades.

Simple Interest. — Interest and amount for years, months, and days; interest and amount for time between given dates; no reference to the indirect cases. Discount of notes.

Ratio and Simple Proportion. — Based upon the equality of fractions involving x. Application to the solution of problems.

Problems. — Finding a number when the number plus or minus a part is given, and corresponding operations in percentage. Practical problems in the work of the grade. Explanations of processes may be required; operations may be indicated by signs. Bills, checks, receipts, notes, making, endorsing and discounting notes, endorsement of checks. Actual application to the business of to-day. Definite instruction in the method of solving problems. Use of equation in x. Actual problems of building and furnishing a house.

Geography

Elements of physical geography, South America, Australia and Africa

Earth motions: rotation and effects, day and night, longitude and time. Standard time.

Revolution and effects: seasons, sun, light zones, latitude.

Distance and direction.

Maps and map scales.

Weather: weather conditions in New York; wind and rainfall at different seasons; relations of state of sky to winds and temperature; study of weather elements of days selected to illustrate weather of other climatic belts.

Climate: study of the distribution and climatic features of great wind systems of the world based on form and motions of earth, which is in part developed from the observational work of the previous grades.

Land forms and drainage: rivers and river valleys; origin, characteristic features, use.

Plains and plateaus, topography, drainage, relation to occupation.

Mountains and volcanoes in a similar way.

Ocean: shore lines, kinds and use thereof; ocean currents, their cause, direction, and importance.

South America.

1. Location in latitude and longitude, in reference to oceans, to other continents.
2. Position in wind system and results.
3. Larger physical and drainage features.

Special treatment of different physical divisions, including

1. Details of climate.
2. Distribution and character of plants and animals.
3. Peoples and nations as related to physical conditions.
4. Products.
5. Commercial relations and position in world commerce.

Similar treatment of Australia and Africa.

History

The subject of study for this year is European history to the time of the settlement at Jamestown.

The work begins with a brief review of Roman history to show the condition of the Roman world at the time when the great barbarian invasions began. The various migrations are then treated in detail and the general characteristics of the German tribes brought out and contrasted with the Roman and Greek. The growth of a German empire — the Holy Roman Empire — is followed till its purposes, extent, nature, and relation to the old

Roman Empire and the Empire in the East are understood in the main. The church is dealt with because it is fundamental to any knowledge of either this period or the colonial period in American history. The church as an institution in the daily life of the people and the state, guiding and controlling, receives attention. The church as a theoretical institution is beyond the pupils and not at all essential to their understanding of the church in its general workings in the life of the people of that time.

Feudalism is treated as a product of economic, social and governmental ills intended to make life more endurable. It is shown as a way of doing things and of getting along in the world rather than an organized system.

In connection with the crusades, the growth of Mohammedanism is traced and the characteristics of Mohammedan life and purposes made plain. In particular the changes in navigation, the growth of cities, the spirit of adventure, and the freeing of the mind are emphasized. This leads naturally to the Renascence period, and to the great explorations and discoveries which culminated in disclosing a new world. With the work of discovery practically completed and the feeble attempts of Europeans to hold and colonize it the work of the year ends.

The texts used are supplemented by photographs, brief talks by the teacher, and some of the work done in English and art.

Physical Nature Study

The Atmosphere

1. *Air is a real substance and occupies space.*
   Prove by experiments.
2. *Air is compressible and elastic.*
   Prove by experiments.
3. *Air has weight and exerts pressure.*
   Show by experiments.
   The pump; simple, force.
   Barometer; make simple mercury barometer.
   Examine aneroid barometer.
   Examine barograph.
   Uses of barometer. Explain decrease of pressure in going up a mountain; increase in going into a mine.
   Make weather observations in New York.

Difference in density near earth and at a height. Compare density of warm and cold air by experiment.

Compare New York with Denver.

4. *Atmosphere as part of the earth.*

How it envelopes land and water, rotates with them; heights to which it extends.

5. *Our relation to atmosphere.*

Dependence of our lives and activities upon atmosphere; lives of plants and animals; air an agent for transporting seeds, pollen, etc.; flight of birds; air in motion drives sails, carries vapor, raises waves, etc.

Affects land forms; weathering, sand-dunes, erosion.

6. *Composition of air.*

a. Character of oxygen. The element that makes things burn. Experiments.

b. Relation of oxygen to man and his activities, light, fire, respiration, etc.

c. Character of nitrogen; value in composition of air.

d. Character of carbonic acid. Relation to animal and plant life.

e. Rusting, corrosion and fermentation.

Heat

1. *Heat from combustion and slow chemical action.*

Heating of buildings.

Heat in the slaking of lime; in the decomposition of animal and vegetable substance.

Animal heat.

Spontaneous combustion.

2. *Heat by radiation.*

How the sun maintains its heat and how it transmits it to the earth. Connect with geographical observations.

3. *Temperature of the air.*

Effect of sun's energy upon air, water, rock-mass.

Temperature is determined by latitude, altitude, land and water areas, winds, currents, clouds.

Study the thermometer, thermograph, weather maps; compare summer and winter temperature over land and water.

How altitude affects temperature.

4. *Moisture of the air.*

a. Evaporation; dependent upon temperature and surface exposed. Prove by experiment.

Effect of wind, dry air, dampness, day and night upon evaporation.

Why one feels heat less on dry, hot day than on moist.

Evaporation of rivers, lakes, etc.

Saltness of ocean.

b. Condensation. What produces it. Boil water; let vapor come into contact with a hot surface, cold one.

(1) Dew. Show formation by experiments.

(2) Frost. Formation; protection of vegetation; work of frost on grounds, on rocks.

(3) Mist; fog. Formation studied. Breath on a cold day. Mists over lakes, swamps, etc.

(4) Clouds. Formation; movement of clouds; effect of winds; direction and velocity; common forms. Reason for color. Cloud observations.

(5) Rain. Formation; shape and size of drops. How rainfall is measured. Rainfall greater on land than on sea. Compare coast-line with interior. Effect of mountains upon rains. Study rainfall maps.

(6) Snow. Formation; shape and size of flakes; crystallization; snow as a protection to vegetation.

(7) Hail. Shape, size, etc. — formation and effect.

Hand Work

Girls — Sewing

The work is planned to give the girls a knowledge of the simple stitches, and their uses; to show them how to apply that knowledge to every-day life, and thus connect this branch of school work closely with the home. The work is done in a special room under the direction of the sewing instructor.

1. Needle books.

Stitches: running, overhanding, blanket stitch.

2. Dressing dolls.

a. Underclothes and dress planned.

b. Measurements taken.

c. Patterns fitted.

d. Material cut.

e. Stitches: basting, running, stitching, overhanding, hemming.

f. Principle involved. Seams; bands; sewing on lace, tapes, buttons, hooks and eyes; making loops; putting in sleeves.

3. Raffia hats.

a. Design for hat drawn.

b. Five-strand braid made, and sewed into shape.

c. Hat trimmed; lining and elastic put in.

4. Fancy stitches.

Hemstitching or featherstitching. Collars and cuffs or small bags and cases are made on which these stitches are used.

Boys

In this grade the boys work by themselves, and most of the time is devoted to a consideration of simple mechanical principles and operations employed in modern building. In working out the applications problems as to materials best suited, variety of forms possible, etc., are developed by the class. The work is done in a special room and under the direction of the teacher of hand-work.

Pottery.

Make and use potter's wheel. Use transparent and opaque glazes.

The Mechanical Element Underlying the Factory Stage of Production.

Overshot waterwheel driving ventilating fans of different types and models of tools through medium of pulleys and belt.

Windmill and pump.

Modern Building Operations.

Derrick with pulleys, cord and winch.

Elevator model made, arranged with belt-shifting device to change direction of run automatically.

Roof truss of wood and strip iron in connection with model of building for railroad depot.

Study of steel and masonry building construction.

Test small wooden beams and develop relation of strength to cross section.

In connection with geography make double swing frame of strip iron for compass.

In connection with history of Middle Ages make study of stained-glass windows, and illustrate by making small example.

Art

1. *Representation.*

Flowers, fruits, vegetables, etc.

a. Broad mass-work in tones to scale;

b. Details of wholes and parts.

Medium: pencil, brush, color. Scale of seven tones, definite terminology, definite values and intensities; colors warm, cool.

Principles: position of distance planes, convergence. Placing — position of masses, length of connecting lines (stems, etc.). Balance of masses. Characteristics, structure. Careful tests for accuracy.

2. *Design.*

Motives in connection with history of Middle Ages. Stained glass and architecture.

Principles: Consistent variation in conception, form (natural and conventional). Movement, rhythm (straight lines, simple curves). Balance — in tones (value, intensity). Emphasis, through contrast (form, size, tone).

3. *Picture Study.*

Potato Planters, Millet. Madonna of the Rabbit, Titian.

Physical Training

(Above fifth grade girls and boys separated into different classes.)

Girls

Free Exercises.

Standing free exercises: taken with increasing attention to details of correct fundamental position, *i. e.*, knees straight, head high, shoulders down and chest high without hollowing the back; increasing attention also given to conscious deep breathing.

Mat exercises.

Dry land swimming: preparation for use of swimming pool.

Hand Apparatus.

Bean bags.
Wooden dumb-bells.
Wooden wands.

Heavy Apparatus.

Beginning of more formal use of apparatus.
Jumping.
Ropes.
Flying rings.
Balance beams (in twos and fours).
Giant stride ("merry-go-round").
Ladders:
- Upright.
- Inclined.
- Horizontal.

Horizontal bar.
Balance ladder.

Dancing.

Practice steps.
Dances done in couples:
- Brownie Polka.
- Modern Varsovienne.

Solo dances done in class formation on floor:
- Benita caprice.

Games.

Jump the shot.
Dodge ball.
Swedish fox and geese.
Improved cat and mouse.
Beetle goes round.
Basket ball.

Boys

Free Exercises.

1. Marching and simple class formations.

2. Various combinations of body, arm, and leg movements, arranged to secure a gradual progression by the introduction of more complex movements from day to day and

designed to correct faulty positions and to strengthen the activities of the vital organs.

3. Mat work in exercises preliminary to tumbling and pyramid work.

Hand Apparatus.

1. Wooden wands.
2. Wooden dumb-bells.
3. Medicine balls.

Heavy Apparatus.

1. Jumping.
   - *a.* Broad jump.
   - *b.* High jump.
     1) From floor.
     2) From spring board.
2. Flying rings.
3. Ladders.
   - *a.* Vertical, climbing exercises.
   - *b.* Horizontal.
     1) Hanging exercises.
     2) Hanging exercises with knee flexions.
     3) Hanging exercises with slight arm flexions.
     4) Hanging exercises with short travel forward and backward.
4. Low horizontal bar.
   - *a.* Vaulting.
   - *b.* Circling.
   - *c.* Coming to the cross rest position.
   - *d.* Hanging and swinging exercises.
5. Buck and horse.
   Simple vaults.
6. Parallel bars.
7. Giant stride.

In all apparatus work attention is directed to the form in which each exercise is carried out.

Games.

1. Curtain ball.
2. Basket ball.

3. Games with medicine balls.
4. Athletic contests.
   a. Twenty-yard dash.
   b. Potato race.
   c. Jumping and hurdling.
   d. Relay races.

Music

Analyzing and singing of more difficult music. Two and three-part studies further illustrating the theoretical difficulties begun in fifth grade.

Song Interpretation. Nature, seasonal and festival songs, songs in relation to history and literature (Crusaders). Writing of Crusaders' hymns. Further interpretation by means of piano music.

Music Structure. In connection with song study, the observation of progression of voices in thirds, sixths, etc.; all voices treated as melodies and studied as such, interchanging of parts.

Original Work. With especial reference to the form of a period, the development of motive phrase and section. The testing of this work through performance and criticism by class. Study of early composers and musical forms. Study of key transition, from given key to nearest related minor key.

GRADE VII

English

Literature.

Courtship of Miles Standish.
Birds and Bees and Sharp Eyes (Burroughs).
A-Hunting of the Deer (Warner).
Life of Washington (Scudder).
School Poetry Book, selections (Penniman).
Stepping Stones to Literature.
Legend of Sleepy Hollow.

Supplementary

Christmas Carol (Dickens).
Evangeline (Longfellow).
Enoch Arden (Tennyson).

Lincoln's Gettysburg Speech.
British Classics.
The Spy (Cooper).
The Pilot (Cooper).
La Salle and the Mississippi (Parkman).
Conspiracy of Pontiac (Parkman).

Language Work.

1. Spelling, from text-book and other school work.
2. Punctuation, drill in, with some reference to the *logic* of punctuation.
3. Prefixes, suffixes, and etymology given occasionally as opportunities arise; synonyms and homonyms as they arise in the work.

Composition.

1. Letter writing.
2. Outlines and paragraphs. Arrangement of material.
3. Reproductions. Narration and description. Imaginative sketches. Sentence study, with reference to clearness and euphony. This work to be related to the grammar work.
4. Dictation.

Memorizing Good Literature.

Grammar.

1. Analysis of sentence reviewed. Phrases and clauses and parts of speech defined. Sentences considered as simple, complex, and compound. Transformation of sentences.
2. Construction of sentences of certain grammatical types.

Mathematics

Special work: Review; business applications

Notation and Numeration. — Notation and numeration of integers, decimals, common fractions, and denominate numbers.

The Four Operations. — Each operation — addition, subtraction, multiplication, and division — considered with reference to integers, decimals, common fractions, denominate numbers, and numbers expressed by letters, before the next operation is treated. The underlying principle of each operation emphasized.

Short Methods. — Multiplying and dividing by integral powers of 10, by aliquot parts of 100, and by the business fractions (see Grade IV).

Measurements. — Longitude and time, briefly treated. The tables reviewed with attention to their origin and development. Review of surface and volumes.

Percentage. — Review and application of percentage including interest; algebraic solutions.

Business Operations. — The pupil considered as actually going into business for himself. Price lists examined; examples in trade discount. Promissory notes payable at banks, written and discounted. Fire insurance, taxes, duties, and partitive proportion.

Business Records. — Cash accounts of imaginary expenditures and receipts recorded; accounts balanced. Records of sales on account made by each pupil as a tradesman.

Business Papers. — Checks and stubs filled by each member of the class. Ways of sending money: postoffice money orders, drafts, express money orders, registered letters, telegraphic transfers. Ordering goods by letter; receipts.

Business Institutions. — The functions of savings banks, banks of deposit, and other corporations, briefly explained.

Square Root. — Simple problems, including problems founded on the Pythagorean theorem.

Mensuration. — Geometric problems.

Problems. — Problems of the practical nature heretofore suggested. *Particular attention* paid to making every problem seem real to the pupil, as one which he may meet. Directions as to how to go into business; what is demanded; the relations of labor and capital.

Geography

North America and Europe

Causal treatment similar to that in Grade VI of United States, Canada, Mexico, and Central America, in which strong emphasis is given to commercial conditions.

The following physical divisions will be treated in the United States:

New England.
New York state as a unit.
Atlantic coastal plain.
Appalachian region.
Gulf plain.
Prairies and great plains.
Rocky Mountains.
Basin ranges.
Colorado Plateau.
Columbia Plateau.
Pacific ranges.

Europe in Review.— Review of United Kingdom, Germany, France, The Netherlands, Belgium, Austria-Hungary, Russia, and Italy to bring out position in world commerce and economic relations to the United States.

History

The work here is a continuation of the study of European life. The point of view is that of European peoples transplanted and developing into a new nation on this side of the Atlantic.

The condition of England in the early part of the seventeenth century is touched on briefly to show the economic, political, industrial, and religious ideas, customs, and institutions which the colonists brought with them to this country as a part of their life and inheritance.

The settlement in Virginia is followed in detail to secure a clear idea of the modified life and institutions of the people and the growth of a strong colony displaying in the main the chief characteristics of what may be regarded as typical of southern life. The other southern colonies are passed over rather hurriedly and only in sufficient detail to give comprehensions of their location, importance, and whatever is peculiar in their history and different from the life seen in Virginia. Constant reference is made to the work of the third and fourth years.

In a similar fashion colonial life is studied in New York and Massachusetts, as the type of Middle State and New England life, and constant comparison is made with Virginia.

The struggle for control between the English and French is prefaced by a brief study of French exploration and discovery. The relation of colony to parent state, the character of life and institutions, and in particular the relations of French and Indians are studied and contrasted with the English colonies.

The separation of the English colonies from England is taken up from the European point of view, as well as the colonial. The changing relation of crown, parliament, peoples, and colonies is traced only in sufficient detail to explain the situation in England and the shifting of arguments of the colonists as one act of England followed the other. The military side of the controversy is studied in general detail to show the location and character of forces, the points of strategic value to each side, and the purposes of each army. Washington's campaign through Jersey and about New York is studied in detail.

In the period that followed the Revolution the working of the general government, the action of the state governments, the financial disorder, the return to a peace footing, etc., naturally lead to a study of the failure of the Confederation, the demand for a new government, and the formation of the Constitution.

The two administrations of George Washington show the way in which the new government got into working order, how the United States was affected by foreign disorders, and the rise of two political parties with their ideas and organizations. The extension of the boundaries of the nation, the beginning of its expansion westward, the transfer of power to a new political party, and the final struggle with England in the War of 1812 leave the nation with fairly well developed organization of government and parties, with large boundaries, with foreign policies defined, and with practical freedom to turn its energies to the conquest of nature and the development of its resources without foreign domination and in a state of internal peace.

With the study of a nation adjusting itself to peace conditions, questions of local and domestic nature occupy the attention; the financial disorders and remedies, tariff discussions and legislation, the westward movement and the rise of new questions dependent upon it, the development of a new democracy with ideals quite different from those of Jefferson, and similar topics, are discussed.

French

(Elective)

In this first year, the aim is to familiarize the ear of the pupil with the spoken language, to give him a correct and easy pronunciation, and the first notions in spelling, reading, and grammar. The first weeks are given entirely to careful training of the ear and to the pronunciation. The child is taught to know and reproduce the sounds in words chosen for that purpose. The lessons are given with the help of the "Holzer's" pictures, to illustrate the words and sentences taught. Phonetic signs are used for the memorizing of the sounds. Later on short pieces are memorized and used as text for the first lessons in reading and spelling, and to illustrate the grammar rules. When the child has learned to understand the meaning of the French text repeated by the teacher, this text is studied until the child is perfectly acquainted with every expression used. Questions in French are then asked on the text and answers are given in the same language. The vocabulary acquired by the child in the year is about 200-500 words.

"Le Livre des enfants" of Paul Bercy is used for reading matter. The French language is generally used in class by the teacher.

Hand Work

Girls — Sewing

The girls in this grade are taught to sew on machines. The work is planned to give them an understanding and an appreciation of good work and good material, that they may know their value and be able to judge these things for themselves.

1. Machine work.

   Cooking apron and sleeves of lawn, made to be worn in the cooking classes.

2. Hand work.

   a. Sofa pillows or book covers; the design made in cross-stitch or appliqué.

   b. Darning and patching.

   1) Stockings darned.
   2) Three-cornered tear in cloth.
   3) Hemmed patch.

Boys

First half year is spent in individual projects in wood, involving element of design wherever practicable. Attention given to development of workmanship and finish.

Photograph Rack.

Wood and wire; form and dimensions given.

Knife Strop.

Wood and leather; form and dimensions given.

Coat Hanger.

Form and dimensions given.

Round Bread Board.

Band decoration of incised cuts on beveled edge; developed in shop.

Blotting Pad.

Band decoration of incised cuts on top developed in drawing room.

Necktie Rack.

Contour of ends developed in drawing room; all other outlines and dimensions given.

Picture Frame.

Flush ends, lap joints.

Group Project.

Such as garden settee.

Second half year is devoted to the study of modern transportation, introducing variety of materials and operations. Opportunity of broad scope for play of individual thought.

Railroad.

Car, with metal trucks and wheels; tracks; switches and signals.

Bridges.

Simple truss, deck and hanging types; suspension bridges, with cables; draw-bridges, revolving and lifting.

Trolley Conveyor.

For trench or subway construction.

Steam Excavator.

Canals, Locks, etc.

Art

1. *Representation.*

Flowers, sprays, etc. (*a*) Broad mass in tones to scale; (*b*) Detailed drawings of wholes and parts for structure. Posed figure.

Medium: pencil, brush, color. Scales of seven tones; definite terminology, definite values and intensities.

Principles: freehand perspective in various phases. Careful tests for accuracy.

2. *Design.*

Blotting pad, band decoration of incised cuts; necktie rack.

Principles: consistent variation (conception, forms, sizes). Movement, rhythms (straight lines, simple curves, compound curves). Balance of tones (value, hue, intensity), sizes (unequal measures at unequal distances). Emphasis through contrast of tone, value, intensity, hue; line direction, gaze movement.

3. *Picture Study.*

Tobias and the Archangel, Botticelli. The Blacksmith's Shop, Frère.

Physical Training

Girls

Free Exercises.

Standing free exercises with attention to position.
Mat exercises.
Dry land swimming.

Hand Apparatus.

Bean bags.
Wooden dumb-bells.
Wooden wands.

Heavy Apparatus.

Running high jump. (Attention to form rather than height.)
Ropes.
Flying rings.
Balance beams (in twos, fours, and singly).
Giant stride.

Ladders (increasing attention to form).
Upright.
Inclined.
Horizontal.
Horizontal bar.
Balance ladder.
Hop, step, and jump.
Broad jump.

Classic Dancing.

Practice movements for arms, and for foot extension.
Dances done in couples.
Review of sixth-grade work.
Alumni Mazurka.
Solo dances.
Benita Caprice.
Faust Waltz.

Games.

Haley over.
Chariot pursuit race.
Tunnel ball race.
Snatch the handkerchief.
Line football.
Basket ball.

Boys

Free Exercise.

Greater progression is secured by the introduction of movements which require a greater coördination of a larger number of muscles. Especial attention is directed to the form in which all of these movements are executed and to the securing of a prompt and accurate response in the execution of commands.

Mat Work.

Continuation of work in Grade VI.

Hand Apparatus.

1. Wooden dumb-bells.
2. Wooden wands.
3. Iron wands.
4. Iron dumb-bells.
5. Indian clubs.

Heavy Apparatus. (See Grade VI.)

Progression is made in the form in which these exercises are carried out rather than in the variety of the movements. The amount of time devoted to this part of the work is increased.

Games.

1. Curtain ball.
2. Basket ball.
3. Games with medicine balls.
4. Athletic contests (see Grade VI).

In addition to the work as outlined for the boys of the fifth, sixth and seventh grades, each boy is given the option of attending and is urged to be present at two after-school classes each week. In these classes, which are largely attended, no formal class exercises are attempted, but the work, while more recreative in form than the regular class work, is carefully watched and directed. The time is devoted to such games, apparatus work in jumping, vaulting, bar and mat work as the boys may select, the choice being left, as far as posssible, with them.

Basket ball is the favorite game, and is participated in by all. Three regular teams have been formed, and while but a very limited number of games are attempted with teams outside the school, the rivalry between these three teams is very keen, and a place on any one of them is regarded by all as a position of honor and is eagerly sought.

Many of the games introduced at the optional periods, as well as at the regular class periods, take the form of contests between different sections of the same class or between different classes. The aim of these contests is to accustom the boys to working one with another. They give to each child, as far as possible, complete relaxation from class routine and yet demand of each a harmonious relating of his activity to the activities of the other members of his section, such as he must have if he is to realize the greatest pleasure and good. In the " free exercises " as well as in the games the child is urged to merge his own individuality into the individuality of the class, and, working in true coördination with the other members, to bring about a harmonious whole. Thus, it is not the separate effort of the individual which is directly emphasized, but rather it is the result of the combined efforts of

many individuals merged into a homogeneous whole which is striven for. This working or playing as a part of a whole rather than as a separate individual, it is believed, will be of great value in developing the social side of the child's consciousness.

A series of gymnasium contests is arranged for and carried out during the winter months. These contests consist of a drill of " free exercises," apparatus work, games and individual work by the five best members of each class and will determine the " champion " class of the school. In this way each boy is stimulated both as an individual and as a member of a class to his best efforts.

An opportunity for similar optional work is given the girls.

Music

More extended two and three-part work and study of triads resulting from the addition of third voice. Special care of voices in selection for parts.

Songs. — Interpretation and analysis in connection with part singing, folk songs, glee choruses. Introduction of boys to bass clef in simple melodic and chordal bass and tenor parts. Special study of motive and phrase, rapid sight reading by phrase.

Music Structure. — Study of triads, first observation by means of singing, and listening to them in their cadence forms, tonic, dominant, sub-dominant, major and minor, writing and recognizing different cadences in connection with song study.

Elementary course in physics of sound, in connection with laboratory work, study of types of musical instruments, percussion, wind and strings. This is practical for those interested in school orchestra. Continuation of study of composers and typical forms in music.

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Subject	Gr. i	Gr. ii	Gr. iii	Gr. iv	Gr. v	Gr. vi	Gr. vii
	Hours	*Hours*	*Hours*	*Hours*	*Hours*	*Hours*	*Hours*
English	6	5½	5⅔	5½	4½	4	4¼
Mathematics	1	2	2½	2½	2	2	2
Nature Study & Geography	1	1¼	2½	2	2½	2¾	2¼
History	—	—	—	1	1½	1¾	2
Opening Exercises	1	1	1	1	1	1	1
Gymnasium	1¼	1¼	1¼	1¼	1	1	1
Music	1½	1½	1⅓	1	1	1	1
Art	1¼	1¾	1⅓	1⅓	1½	1½	1
Manual Training	1	1⅓	1⅓	1⅓	1½	1¼	1¼
Total	14	15½	17	17	16½	16¼	15¾

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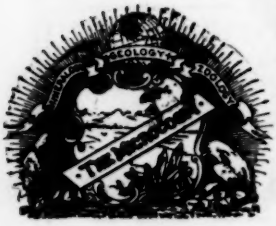

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